

5  
622.34  
L3hmop  
1989  
Chen-Northern, inc  
Hazardous Mine  
Opening Project,  
phase 24,  
Beaverhead and  
Madison Counties,  
Montana, Mont. A/E

# Chen Northern, Inc.

STATE DOCUMENTS COLLECTION

NOV 25 1991

MONTANA STATE LIBRARY  
1515 E. 6th AVE.  
HELENA, MONTANA 59620

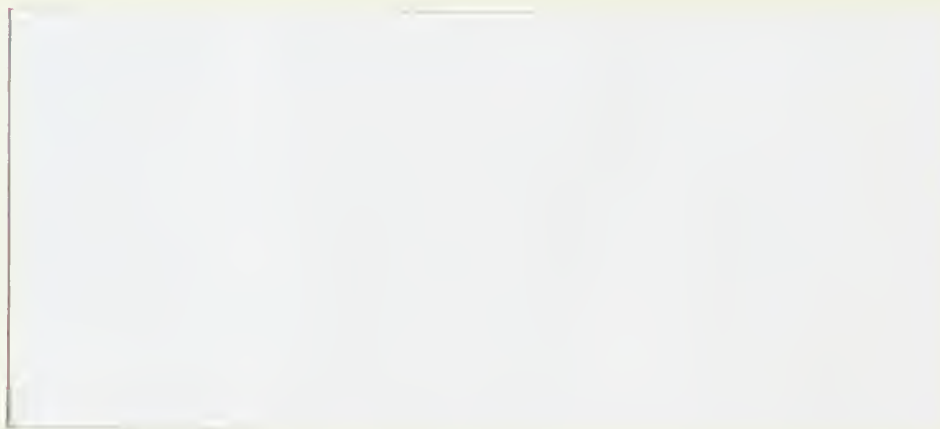
FINAL REPORT

HAZARDOUS MINE OPENING PROJECT, PHASE 24  
BEAVERHEAD AND MADISON COUNTIES, MONTANA  
Mont. A/E 88-46-110

PLEASE RETURN

APR 6 - 1994

MONTANA STATE LIBRARY  
S 622.34 L3hmop 1989 c.1  
Hazardous Mine Opening Project, phase 24  
  
3 0864 00075036 7



FINAL REPORT

HAZARDOUS MINE OPENING PROJECT, PHASE 24  
BEAVERHEAD AND MADISON COUNTIES, MONTANA  
Mont. A/E 88-46-110



FINAL REPORT

HAZARDOUS MINE OPENING PROJECT, PHASE 24  
BEAVERHEAD AND MADISON COUNTIES, MONTANA  
Mont. A/E 88-46-110

Prepared for:

State of Montana  
Department of State Lands  
Abandoned Mine Reclamation Bureau  
1625 11th Ave  
Helena, Montana 59620

Prepared by:

Chen-Northern, Inc.  
1610 B Street  
P.O. Box 4699  
Helena, Montana 59604

Project Inspector: Josh Stewart

Project Engineer: Jeremiah B. Bowser, P.E.

October 23, 1989



Digitized by the Internet Archive  
in 2014

[https://archive.org/details/hazardousmineop1989chen\\_1](https://archive.org/details/hazardousmineop1989chen_1)

## TABLE OF CONTENTS

	Page
LIST OF FIGURES . . . . .	ii
LIST OF TABLES. . . . .	ii
LIST OF APPENDICES. . . . .	ii
<b>1.0 INTRODUCTION . . . . .</b>	<b>1</b>
1.1 OVERVIEW. . . . .	1
1.2 PROJECT OBJECTIVES. . . . .	1
1.3 PROJECT LOCATION. . . . .	1
1.4 HISTORY . . . . .	1
1.5 SIT DESCRIPTION AND PROBLEMS. . . . .	4
<b>2.0 DESCRIPTION OF PROJECT RECLAMATION . . . . .</b>	<b>5</b>
2.1 PROJECT PLANNING. . . . .	5
2.2 CHRONOLOGICAL HISTORY . . . . .	5
2.3 EQUIPMENT . . . . .	6
2.4 CONSTRUCTION OPERATIONS . . . . .	6
<b>3.0 COST SUMMARY . . . . .</b>	<b>7</b>
3.1 FINAL PAYMENT REQUEST . . . . .	7
3.2 CHANGE ORDERS . . . . .	7
3.3 COST PER DISTRICT . . . . .	7
3.4 PROFESSIONAL SERVICE FEES . . . . .	13
<b>4.0 SUMMARY. . . . .</b>	<b>15</b>
4.1 COMPLETED RECLAMATION . . . . .	15
4.2 COMMENTS. . . . .	15
<b>5.0 SLIDES . . . . .</b>	<b>16</b>





LIST OF FIGURES

FIGURE 1	ANALYSIS OF PROFESSIONAL SERVICE FEES HAZARDOUS MINE OPENING PROJECT - PHASE 24 . . . . .	14
----------	--	----

LIST OF TABLES

TABLE 1	PHASE 24 PROJECT LOCATIONS. . . . .	2
TABLE 2	PHASE 24 QUANTITIES AND COSTS . . . . .	8

LIST OF APPENDICES

APPENDIX A	VICINITY AND SITE MAPS
APPENDIX B	FINAL PAY REQUEST, CHANGE ORDERS, AND WORK DIRECTIVES
APPENDIX C	SLIDES



## 1.0 INTRODUCTION

### 1.1 OVERVIEW

Hard rock mining has taken place in Montana since 1862 and was essentially unregulated from a reclamation standpoint for over one hundred years. This resulted in thousands of hazardous shafts and adits in mining districts across the state. The hazards associated with these mine openings are many and range from bad air to falling and cave-ins.

### 1.2 PROJECT OBJECTIVES

The Phase 24 Hazardous Mine Opening Project was designed and executed with the intent of eliminating accidental or unauthorized exposure to hazards existing at a number of abandoned hard rock mines in Beaverhead and Madison Counties.

Backfilling was the preferred reclamation option for closing hazardous adits and shafts but alternative methods (eg. bulkheads, fencing) were utilized at the owners request.

### 1.3 PROJECT LOCATION

This project included approximately 140 openings at 50 sites located in five mining districts in Beaverhead and Madison Counties, Montana. Legal descriptions are listed in Table 1 and site locations are shown on the vicinity maps in Appendix A.

### 1.4 HISTORY

Mining in Montana began in the early 1860's with several years of placer mining preceding the discovery of load deposits in most districts. The levels of mining activity fluctuated until 1905 when many of the mines were abandoned. Present activity includes limited mining and exploration.

A brief history on the individual districts included in the Phase 24 Hazardous Mine Opening Project follows.

APEX MINING DISTRICT, BEAVERHEAD COUNTY - No historical information was obtained on this district.

LOST CREEK MINING DISTRICT, BEAVERHEAD COUNTY - In 1951, exploration revealed several tungsten bearing ore belts in the Lost Creek District. Between 1954 and 1957 the district was active producing an estimated 646,000 tons of tungsten ore.



TABLE 1

PA #	COUNTY	DISTRICT	SITE NAME	LEGAL DESCRIPTION
01-137	Beaverhead	Apex	Sodak	T05S R08W S16 SW NE
01-190	Beaverhead	Lost Creek	Lost Fraction	T04S R10W S23 NW NE
01-182	Beaverhead	Lost Creek	Sugar Loaf	T04S R10W S14 NW SE
29-026	Madison	McCartney Mountain	Bessie	T04S R08W S04 SW NE
29-087	Madison	McCartney Mountain	Glen	T04S R08W S18 SE NW
29-089	Madison	McCartney Mountain	Golden Fleece	T04S R08W S09 NE NW
29-051	Madison	Rochester	Agnes	T02S R07W S31 NE SW
29-193	Madison	Rochester	Anything	T02S R07W S33 SW SW
29-055	Madison	Rochester	C.C. #2	T02S R07W S31 NW SW
29-060	Madison	Rochester	Elgin	T02S R07W S32 NE NW
29-061	Madison	Rochester	Emma	T03S R07W S06 SE SW
29-208	Madison	Rochester	Hermit	T02S R07W S32 NW SE
29-207	Madison	Rochester	Idler	T03S R07W S04 SW NW
29-196	Madison	Rochester	Lizzie Ann	T02S R07W S31 NE NE
29-192	Madison	Rochester	Monitor	T02S R07W S33 SW NE
29-190	Madison	Rochester	NE Section 32	T02S R07W S32 NE NE
29-188	Madison	Rochester	NE Section 4	T03S R07W S04 NW NE
29-159	Madison	Rochester	NW Section 26	T03S R07W S26 SW NW
29-160	Madison	Rochester	NW Section 33	T03S R07W S33 SE NW
29-158	Madison	Rochester	Never Fail	T03S R07W S33 SW SW
29-189	Madison	Rochester	SW Section 3	T03S R07W S03 NW SW
29-191	Madison	Rochester	SW Section 9	T03S R07W S09 NE SW
29-075	Madison	Rochester	Watseca	T02S R07W S32 SW NW
29-195	Madison	Rochester	Yellow Metal	T02S R07W S29 SW SW
29-173	Madison	Silver Star	Agalia	T02S R06W S15 SW SW
29-444	Madison	Silver Star	Ajax	T02S R06W S03 NE NE
29-183	Madison	Silver Star	Aurora Boraellis	T02S R06W S10 SW NW
29-145	Madison	Silver Star	Aurora/Galena	T02S R06W S03 SW SW
29-180	Madison	Silver Star	Baccharat	T02S R06W S15 N SW
29-179	Madison	Silver Star	Broadway/Victoria	T02S R06W S02 NW NW
29-177	Madison	Silver Star	Bull Dog	T02S R06W S22 NW NW
29-154	Madison	Silver Star	Chromite	T02S R06W S10 SE NW
29-152	Madison	Silver Star	Clancy	T01S R06W S33 NE NE
29-143	Madison	Silver Star	Clifford	T02S R06W S16 NE NE
29-200	Madison	Silver Star	Clipper	T02S R06W S15 SE SW
29-147	Madison	Silver Star	Cricket	T02S R06W S10 SE SW
29-181	Madison	Silver Star	Glenns Falls	T02S R06W S15 NW SE
29-090	Madison	Silver Star	Golden Rod	T02S R06W S22 NE NE
29-009	Madison	Silver Star	Green-Campbell	T02S R06W S03 NE NW
29-211	Madison	Silver Star	Hudson	T02S R06W S02 SE NW
29-174	Madison	Silver Star	Iron Rod	T02S R06W S22 NE NW
29-175	Madison	Silver Star	Iron Rod Extention	T02S R06W S15 SE SW
29-176	Madison	Silver Star	Keystone	T02S R06W S03 NE NE
29-182	Madison	Silver Star	Locust	T02S R06W S15 NW SW
29-186	Madison	Silver Star	Moonlight	T02S R06W S15 NE NW
29-213	Madison	Silver Star	Morning	T01S R06W S34 SE SE
29-178	Madison	Silver Star	Sample Orr	T02S R06W S03 NE NE



TABLE 1 (continued)

PA #	COUNTY	DISTRICT	SITE NAME	LEGAL DESCRIPTION
29-148	Madison	Silver Star	Shamrock	T01S R06W S33 SE NE
29-151	Madison	Silver Star	Star	T02S R06W S10 NE NE
29-144	Madison	Silver Star	Stella/Golden Spike	T02S R06W S09 NE SE





MCCARTNEY MOUNTAIN MINING DISTRICT, MADISON COUNTY - No historical information was obtained on this district.

ROCHESTER MINING DISTRICT, MADISON COUNTY - This district was discovered in the late 1860's and was worked intermittently for many years, with peak production between 1898 and 1905. During this period, the town of Rochester reached a reported population of 5,000. It has been estimated that this district produced \$2.5 million in gold and silver prior to 1932.

The Emma Mine is recorded to have been productive in 1905, though its period of greatest activity was from 1928 to 1932 producing primarily silver-lead concentrates.

The Watseca Mine was the most important in the Rochester district based on production. Mining began at the Watseca in 1869 and continued until 1905. In 1974, a modern custom plant was erected on the site of the old mill. Some gold extraction was performed from the ore and tailings of the Watseca and outlying sites, but the ore contained a high concentration of copper and the process was not cost effective.

SILVER STAR MINING DISTRICT, MADISON COUNTY - Between 1860 and 1880 the Silver Star District was very active. The Green Campbell was one of the best known lodes mine in Montana with production estimated at over \$400,000. The Broadway/Victoria group of mines were the most important in production with an estimated \$1,050,000 in ore, more than half of which was mined prior to 1880. Other important mines include the Aurora, Iron Rod and Hudson. All were noted as having contributed greatly to the over all production of the Silver Star district.

## 1.5 SITE DESCRIPTION AND PROBLEMS

The sites included in this project are located in or near residential areas, historic sites, close to public roads or in recreation areas. All mine openings threatened public safety. The shafts involved were deep enough to prevent unaided escape upon entry. Adits were obstructed or fitted with accessing bulkheads to protect the curious from unsuspected dangers.



## 2.0 DESCRIPTION OF PROJECT RECLAMATION

### 2.1 PROJECT PLANNING

Backfill was recommended for all mine openings to permanently eliminate the hazardous mine openings. However, many landowners refused to allow backfill and accessing bulkheads or fencing were installed. These alternative methods do accomplish the goals of preventing accidental entry but are semi-permanent in nature and are subject to vandalism.

Steel grate systems used as shaft closures were fabricated by an independent contractor; Lewis D. Morris, 1814 Wilder, Helena, MT. The grates were available for transport to Phase 24 Project sites at the start of the project. This arrangement resulted in cost savings and eliminated the need for additional contract time (which would have been necessary if grate fabrication was the responsibility of the construction contractor). The following is a list of grate sizes, fabrication costs, and prices per square foot.

<u>Size</u>	<u>Cost</u>	<u>Price/Sq.Ft.</u>
10 x 10	430.00	4.30
16 x 16	1050.00	4.10
16 x 24	1586.00	4.13
24 x 24	2350.00	4.08
24 x 32	3456.00	4.50
32 x 36	5280.00	4.58

### 2.2 CHRONOLOGICAL HISTORY

Pre-Bid Conference	August 19, 1988
Bid Opening	August 31, 1988
Contract Award	September 8, 1988
Contract Awarded To:	

Scott Construction  
P.O. Box 777  
East Helena, MT 59635  
(406) 227-5740

Pre-Construction Meeting	September 21, 1988
Notice to Proceed	September 21, 1988
Began work	September 26, 1988
Temporary Winter Shut-Down	November 30, 1988
Resumed work	March 9, 1989
Substantial completion	May 12, 1989
Final acceptance	June 2, 1989



## 2.3 EQUIPMENT

5 Yard Dump Truck  
Case 580 D Backhoe  
Cat D-7 Dozer  
Cat 931 Track Loader  
Compressor and Air Drill  
3/4 ton Four Wheel Drive Tool Truck  
1/2 ton Four Wheel Drive Truck & Portable Welder  
1/3 Yard Portable Cement Mixer  
Tilt Bed Trailer  
100 Gallon Water Tank  
8 Ton Hydro-Crane  
Tractor/Air Compressor

## 2.4 CONSTRUCTION OPERATIONS

The contractor performed the following:

1. Backfilled 39 mine openings (8,127.80 c.y.s.)
2. Installed 3 adit doors
3. Installed 24 adit culverts with locking hatches
4. Installed 6 adit cable net barriers
5. Installed 47 shaft grate systems
6. Installed 4950 lineal feet of farm fence
7. Installed 49 "Hazard Mine Shaft" signs
8. Installed 1 adit gate and timber set
9. Revegetated all area disturbed by construction activities



### 3.0 COST SUMMARY

#### 3.1 FINAL PAYMENT REQUEST

A copy of the Final Payment Request is contained in Appendix B. That document contains the final quantities and costs for each work item.

#### 3.2 CHANGE ORDERS

Two change orders were executed during the Phase 24 construction period for a total net change in contract price of (+) \$53,450.43. The Change Orders were derived from a total of fifteen work directive changes and represent 21% of the project total. Copies of the Change Orders and Work Directives are also included in Appendix B.

#### 3.3 COST PER DISTRICT

Table 2 details the work performed (with estimated or measured quantities) for each mine opening included in the Phase 24 Project. Below are the totals for each Mining District and the Completed Project.

Apex Mining District	\$ 1,727.05
Lost Creek Mining District	\$ 8,118.00
McCartney Mountain Mining District	\$ 15,031.56
Rochester Mining District	\$ 127,796.18
Silver Star Mining District	\$ <u>160,622.84</u>
Phase 24 Project Total	\$ 313,295.63

Site work and mobilization costs were bid on a lump sum basis and have been distributed amongst the fifty sites as follows:

- o Site Work - It was estimated that a total of 8.0 acres were disturbed by construction activities. Of those 8.0 acres, 6.5 acres were disturbed at backfill sites and the remaining 1.5 acres were distributed equally between the culvert sites. All other types of closures were performed with negligible disturbance. Given this, the site work cost per site was calculated at \$1564.46/acre (\$12,500.00 L.S./8.0 acres).
- o Mobilization - On a per site basis, the districts having only a few sites would incur a higher mobilization cost than those having numerous sites. For estimating purposes, the total cost of mobilization was distributed equally between the fifty sites. Mobilization cost was calculated at \$300.00/site (\$15,000/50 sites).





**TABLE 2**  
**PHASE 24 QUANTITIES AND COSTS**

DISTRICT	SITE	#	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	ACRES	COST
Apex	Sodak	1	Backfill	Backfill	110				\$ 544.50
Apex	Sodak	2	Backfill	Backfill	59				292.05
Apex	Sodak	3	Backfill	Backfill	24.4				120.78
Apex	Sodak	4	Backfill	Backfill	22.2				109.89
Apex	Sodak		Site Work					.23	359.83
Apex	Mobilization								300.00
Apex	Total				215.60			0.23	\$ 1,727.05
Lost Creek	Lost Fraction	1	Adit Door	Adit Gate					\$ 2,300.00
Lost Creek	Lost Fraction	1	-	Timber Set					450.00
Lost Creek	Sugar Loaf	2	Fence	Fence		740	3		3,044.00
Lost Creek	Sugar Loaf	3 & 4	Fence	Fence		410	3		1,724.00
Lost Creek	Mobilization								600.00
Lost Creek	Total					1150	6		\$8,118.00
McCartney Mtn	Bessie	1	Grate	Fence		500	3		\$ 2,084.00
McCartney Mtn	Bessie	2	Grate	Grate					3,500.00
McCartney Mtn	Bessie	3	Culvert	Culvert					1,600.00
McCartney Mtn	Bessie		Site Work					.07	109.51
McCartney Mtn	Glen	4	Cable Net	Culvert					1,600.00
McCartney Mtn	Glen	5	Cable Net	Culvert					1,600.00
McCartney Mtn	Glen	6	Cable Net	Culvert					1,600.00
McCartney Mtn	Glen		Site Work					.21	328.54
McCartney Mtn	Golden Fleece	7	Culvert	Culvert					1,600.00
McCartney Mtn	Golden Fleece		Site Work					.07	109.51
McCartney Mtn	Mobilization								900.00
McCartney Mtn	Total					500	3	0.35	\$15,031.56
Rochester	Agnes	1	Grate	Grate					\$ 3,500.00
Rochester	Agnes	2	Grate	Grate					7,730.00
Rochester	Anything	3 & 3A	Backfill	Backfill	530				2,623.50
Rochester	Anything	4	Backfill	Backfill	205				1,014.75
Rochester	Anything	5	Backfill	Backfill	206				1,019.70
Rochester	Anything	5A	-	Backfill	30				148.50
Rochester	Anything	6	Grate	Grate					3,500.00
Rochester	Anything		Site Work					.34	531.92



Table 2 (continued)

DISTRICT	SITE	#	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	ACRES	COST
Rochester	CC #2	7	Grate	Grate					4,800.00
Rochester	CC #2	8	Grate	Fence	310	4			1,352.00
Rochester	CC #2	9	Grate	Grate					4,800.00
Rochester	Elgin	10	Grate	Grate					2,880.00
Rochester	Elgin	11	Grate	Grate					3,500.00
Rochester	Emma	14	Grate	Grate					4,036.00
Rochester	Emma	15	Grate	Grate					4,800.00
Rochester	Emma	16	Grate	Grate					4,800.00
Rochester	Emma	16A	-	Grate					2,880.00
Rochester	Emma	17 & 18	Fence	Fence		285	2		1,196.00
Rochester	Hermit	19	Grate	Grate					4,800.00
Rochester	Idler	20	Grate	Grate					3,500.00
Rochester	Lizzie Ann	21	Grate	Grate					3,500.00
Rochester	Monitor	22	Grate	Grate					4,700.00
Rochester	NE Section 4	23	Grate	Grate					3,500.00
Rochester	NE Section 4	24	Grate	Grate					2,880.00
Rochester	NE Section 32	26	Grate	Grate					3,500.00
Rochester	Never Fail	27	Culvert	Culvert					1,600.00
Rochester	Never Fail	28	Grate	Grate					3,500.00
Rochester	Never Fail	29	Grate	Grate					4,800.00
Rochester	Never Fail		Site Work					.07	109.51
Rochester	NW Section 26	30	Culvert	Grate					3,500.00
Rochester	NW Section 26	30A	-	Grate					2,880.00
Rochester	NW Section 33	31	Backfill	Backfill	65				321.75
Rochester	NW Section 33	32	Backfill	Backfill	69				341.55
Rochester	NW Section 33	33	Backfill	Backfill	95				470.25
Rochester	NW Section 33	34	Backfill	Backfill	45				222.75
Rochester	NW Section 33	35	Backfill	Backfill	70				346.50
Rochester	NW Section 33	36	Backfill	Backfill	100				495.00
Rochester	NW Section 33	37	Backfill	Backfill	81				400.95
Rochester	NW Section 33	38	Backfill	Backfill	85				420.75
Rochester	NW Section 33		Site Work					1.34	2,096.38
Rochester	SW Section 3	40	Cable Net	Culvert					1,600.00
Rochester	SW Section 3		Site Work					.07	109.51
Rochester	SW Section 9	44	Backfill	Backfill	44				217.80
Rochester	SW Section 9		Site Work					.025	39.11
Rochester	Watseca	45	Grate	Fence		164	2		712.00
Rochester	Watseca	46	Grate	Grate					2,880.00
Rochester	Watseca	46A	-	Grate					3,500.00
Rochester	Watseca	46B	-	Grate					4,800.00
Rochester	Watseca	46C	-	Fence		125	2		556.00
Rochester	Watseca	46D & E	-	Fence		222	2		944.00
Rochester	Watseca	47	Grate	Fence		121	2		540.00
Rochester	Yellow Metal	48	Grate	Grate					3,500.00
Rochester	Mobilization								5,400.00
Rochester	Total				1935	921	10	1.85	\$127,796.18



Table 2 (continued)

DISTRICT	SITE	#	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	ACRES	COST
Silver Star	Agalia	1	Grate	Grate					\$5,906.00
Silver Star	Agalia	2	Culvert	Culvert					1,600.00
Silver Star	Agalia		Site Work					.07	109.51
Silver Star	Ajax	4	Cable Net	Cable Net					1,000.00
Silver Star	Ajax	6	Fence	Fence		140	2		616.00
Silver Star	Ajax	7	Culvert	Culvert					1,600.00
Silver Star	Ajax		Site Work					.07	109.51
Silver Star	Aurora Boraellis	8	Adit Door	Adit Door					1,000.00
Silver Star	Aurora Boraellis	9	Cable Net	Culvert					1,600.00
Silver Star	Aurora Boraellis		Site Work					.07	109.51
Silver Star	Aurora/Galena	10 & 11	Backfill	Backfill	91.6				453.42
Silver Star	Aurora/Galena	11A	-	Backfill	263				1,301.85
Silver Star	Aurora/Galena		Site Work					.1	156.45
Silver Star	Baccharat	12	Backfill	Backfill	204				1,009.80
Silver Star	Baccharat	13	Grate	Grate					2,880.00
Silver Star	Baccharat	14	Grate	Grate					2,772.50
Silver Star	Baccharat	14A	-	Sp.Culvert					500.00
Silver Star	Baccharat		Site Work					.025	39.11
Silver Star	Broadway/Victoria	15	Sp.Grate	Grate					4,800.00
Silver Star	Broadway/Victoria	16	Grate	Grate					4,016.70
Silver Star	Broadway/Victoria	76	Backfill	Backfill	22.2				109.89
Silver Star	Broadway/Victoria	77	Backfill	Backfill	53.3				263.83
Silver Star	Broadway/Victoria	78	Backfill	Backfill	155.6				770.22
Silver Star	Broadway/Victoria	79	Fence	Fence		106	2		480.00
Silver Star	Broadway/Victoria	80	Culvert	Culvert					1,600.00
Silver Star	Broadway/Victoria	88	Cable Net	Culvert					1,600.00
Silver Star	Broadway/Victoria		Site Work					.65	1,016.90
Silver Star	Bull Dog	18	Cable Net	-					
Silver Star	Bull Dog	19	Cable Net	Culvert					1,600.00
Silver Star	Bull Dog	20,20A	Backfill	Backfill	32.5				160.87
Silver Star	Bull Dog	21	Cable Net	Culvert					1,600.00
Silver Star	Bull Dog	68	Culvert	Culvert					1,600.00
Silver Star	Bull Dog	69	Backfill	Backfill	32				158.40
Silver Star	Bull Dog	22	Fence	Fence		321	4		1,396.00
Silver Star	Bull Dog		Site Work					.31	484.98
Silver Star	•Chromite	23	Backfill	Backfill	130				643.50
Silver Star	Chromite		Site Work					.1	156.45
Silver Star	Clancy	24	Backfill	Backfill	2430				12,028.50
Silver Star	Clancy	25	Grate	Grate					4,016.70
Silver Star	Clancy		Site Work					1.3	2,033.80
Silver Star	Clifford	26	Backfill	Backfill	212				1,049.40
Silver Star	Clifford	27	Backfill	Backfill	478				2,366.10
Silver Star	Clifford	28	Backfill	Backfill	148				732.60
Silver Star	Clifford	29	Backfill	Backfill	447				2,212.65
Silver Star	Clifford		Site Work					.71	1,110.77
Silver Star	Clipper	30	Culvert	Culvert					1,600.00
Silver Star	Clipper	31	Culvert	Culvert					1,600.00
Silver Star	Clipper	74	Backfill	-					



Table 2 (continued)

DISTRICT	SITE	#	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	ACRES	COST
Silver Star	Clipper		Site Work					.14	219.02
Silver Star	Cricket	32	Culvert	Culvert					1,600.00
Silver Star	Cricket	32A	Grate	Grate					2,557.50
Silver Star	Cricket	33	Cable Net	Culvert					1,600.00
Silver Star	Cricket		Site Work					.14	219.02
Silver Star	Fagan	86	Backfill	-					
Silver Star	Glenns Falls	34	Backfill	Backfill	42				207.90
Silver Star	Glenns Falls	35	Backfill	Backfill	80				396.00
Silver Star	Glenns Falls	36	Backfill	Backfill	133				658.35
Silver Star	Glenns Falls	37	Backfill	Backfill	18				89.10
Silver Star	Glenns Falls	38	Backfill	Backfill	26				128.70
Silver Star	Glenns Falls		Site Work					.47	735.30
Silver Star	Golden Rod	39	Cable Net	Cable Net					1,000.00
Silver Star	Golden Rod	40	Cable Net	Cable Net					1,000.00
Silver Star	Green Campbell	41	Backfill	Grate					4,166.60
Silver Star	Green Campbell	42	Grate	Grate					3,500.00
Silver Star	Green Campbell	43	Grate	Fence		113	2		508.00
Silver Star	Green Campbell	44	Grate	Grate					3,500.00
Silver Star	Green Campbell	45	Backfill	Culvert					1,600.00
Silver Star	Green Campbell	46	Backfill	Culvert					1,600.00
Silver Star	Green Campbell	47	Backfill	Culvert					1,600.00
Silver Star	Green Campbell	48	Backfill	Culvert					1,600.00
Silver Star	Green Campbell		Site Work					.28	438.05
Silver Star	Hudson	17	Grate	Grate					3,500.00
Silver Star	Hudson	81	Cable Net	Culvert					1,600.00
Silver Star	Hudson	84	Grate	Grate					3,500.00
Silver Star	Hudson		Site Work					.07	109.51
Silver Star	Iron Rod	49	Fence	Fence		161	2		700.00
Silver Star	Iron Rod	50	Grate	Grate					3,500.00
Silver Star	Iron Rod	51	Grate	Grate					3,500.00
Silver Star	Iron Rod	52	Cable Net	Cable Net					1,000.00
Silver Star	Iron Rod	53	Cable Net	-					
Silver Star	Iron Rod	70	Fence	Fence		154	2		672.00
Silver Star	Iron Rod Exten.	60	Grate	Grate					3,500.00
Silver Star	Iron Rod Exten.	61	Grate	Grate					3,500.00
Silver Star	Keystone	54	Sp.Grate	Sp.Grate					2,625.50
Silver Star	Keystone	55	Cable Net	Adit Door					1,000.00
Silver Star	Keystone	57	Fence	Fence		282	2		1,184.00
Silver Star	Locust	58	Grate	Sp.Grate					2,976.08
Silver Star	Locust	58A	-	Fence		117	2		524.00
Silver Star	Locust	58B	-	Fence		121	2		540.00
Silver Star	Locust	59	Grate	Grate					2,680.00
Silver Star	MGV	85	Backfill	-					
Silver Star	Moonlight	62	Cable Net	Adit Door					1,000.00
Silver Star	Moonlight	63	Grate	Grate					3,500.00
Silver Star	Morning	87	Cable Net	Cable Net					1,000.00
Silver Star	Sample Orr	64	Backfill	Backfill	55				272.25
Silver Star	Sample Orr	65	Backfill	Backfill	370				1,831.50





Table 2 (continued)

DISTRICT	SITE	#	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	ACRES	COST
Silver Star	Sample Orr		Site Work					.97	1,517.53
Silver Star	Shamrock	73	Fence	Fence		558	6		2,400.00
Silver Star	Star	66	Cable Net	Cable Net					1,000.00
Silver Star	Star	71	Backfill	-					
Silver Star	Star	72	Backfill	-					
Silver Star	Stella/Gldn Spike 67		Backfill	Backfill	124				613.80
Silver Star	Stella/Gldn Spike 67A		Backfill	Backfill	5				24.75
Silver Star	Stella/Gldn Spike		Site Work					.1	156.46
Silver Star	Mobilization								7,800.00
<hr/>									
Silver Star	Total				5,977.20	2,073	26	5.58	\$160,622.84
<hr/>									
Total Phase 24 Construction Cost					8,127.80	4,644	45	8.01	\$313,295.63



### 3.4 PROFESSIONAL SERVICE FEES

Services provided by Chen-Northern, Inc. include landowner consent, budget preparation, grant application, weed board approval, basic engineering, construction staking, construction contract administration, quantity accounting and full time resident inspection. The project included 50 sites in 2 counties resulting in extensive travel time. Construction activities were performed during two construction seasons. An analysis of these fees in relation to the Total Project Cost is included as Figure 1.



## FIGURE 1

### ANALYSIS OF PROFESSIONAL SERVICE FEES

#### HAZARDOUS MINE OPENING PROJECT - PHASE 24

DESIGN COSTS - Grant Preparation, Site Evaluation, Engineering and Bid Documents	\$ 27,110.22
INSPECTION COSTS - Construction Administration, Construction Inspection and Final Report	\$ <u>63,732.92</u>
CHEN-NORTHERN COSTS	\$ 90,843.14
STEEL GRATE FABRICATION COSTS	\$ 61,852.63
CONTRACTORS CONSTRUCTION COSTS	\$ <u>251,443.00</u>
TOTAL PHASE 24 CONSTRUCTION COSTS	\$313,295.63

#### PERCENTAGE ANALYSIS

Chen-Northern Design Cost/Total Construction Cost	8.6 %
Chen-Northern Inspection Cost/Total Construction Cost	20.3 %
Total Chen-Northern Cost/Total Construction Cost	29.0 %



## 4.0 SUMMARY

### 4.1 COMPLETED RECLAMATION

The original Phase 24 contract specified reclamation consisting of 44 steel grates, 11 culverts, 20 cable nets, 1 adit door, 12 fence sites, and backfilling 48 openings. The actual work constructed amounted to installing 47 steel grates, 24 culverts, 6 cable nets, 3 adit doors, 1 adit gate, erecting 21 fences and backfilling 39 openings. A total of 12 new openings were included in the project and 7 of the original openings were deleted.

The most significant change involved the installation of culverts in place of the cable nets specified in the bid document. A majority of the adit portals consisted of rock that was fractured and unsupported. The vibration caused by the drilling required for rock bolt installation often jeopardized the operators safety by dislodging loose rock. In numerous cases a drill hole suitable for rock bolt installation could not be obtained therefore, culverts were installed in these portals instead.

Numerous openings found during the course of construction were added to the project and others were deleted due to their natural collapse since the time of inventory. Other changes resulted from directives issued by new owners or lessees not originally contacted for reclamation consent.

The contractor completed the work as specified within the time allowed.

### 4.2 COMMENTS

The bulkhead closures installed may protect against unauthorized entry for many years. Periodic monitoring will be required to verify the condition of all mine openings included in the Phase 24 Project to assure against subsidence, vandalism and damage due to natural causes. Revegetation efforts should also be monitored for success.





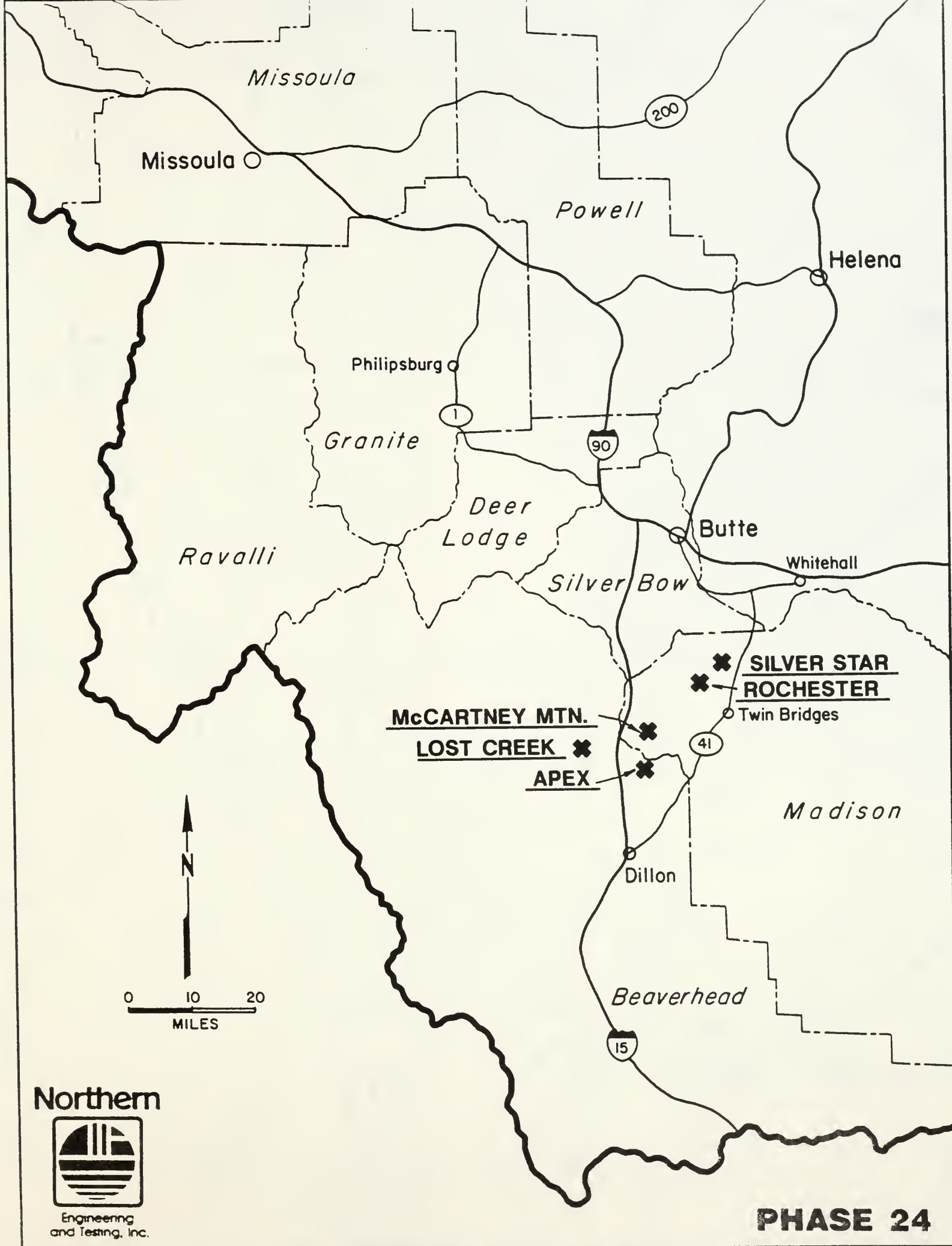
## **5.0 SLIDES**

Before, during, and post-construction slide photographs were taken of each opening. These slides and a slide log are contained in Appendix C.



**APPENDIX A**  
**VICINITY AND SITE MAPS**

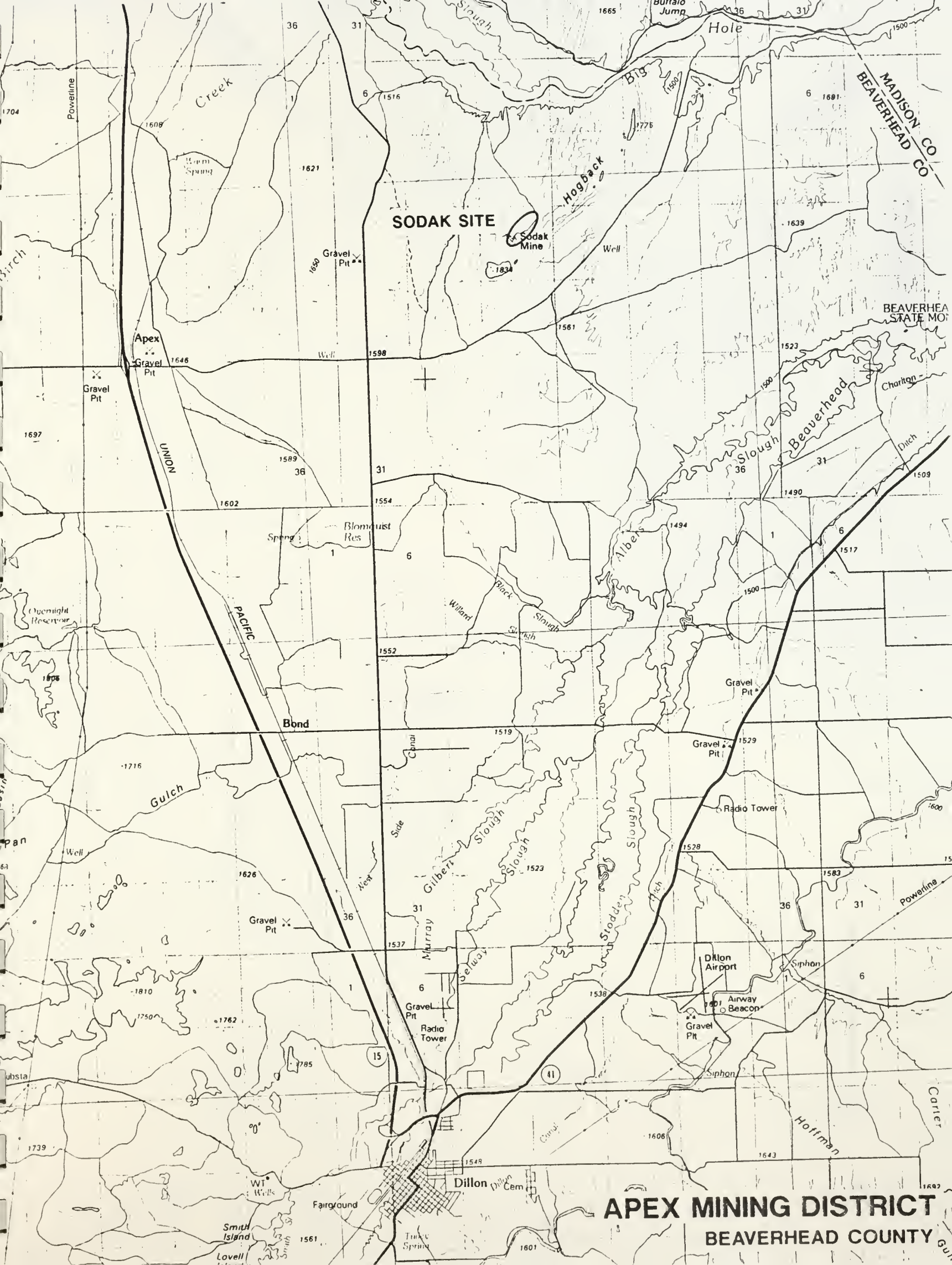




## HAZARDOUS MINE OPENING PROJECT







**APEX MINING DISTRICT**  
**BEAVERHEAD COUNTY**







MADISON CO  
BEAVERHEAD CO

BIG

HOLE

RIVER

Sodak Mill

Mine 4

Mine 3

Sodak Mine

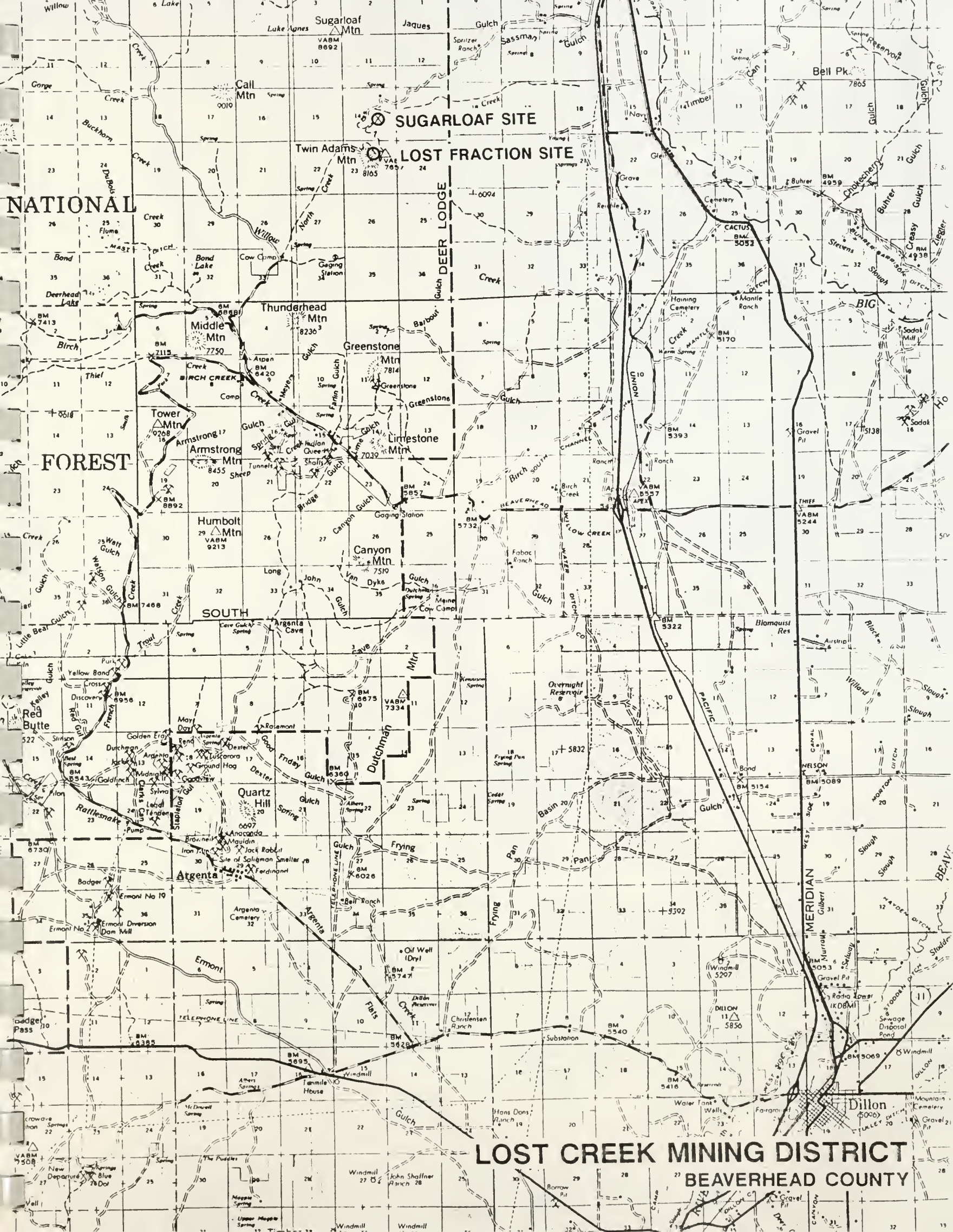
Well

1"=2000'

APEX

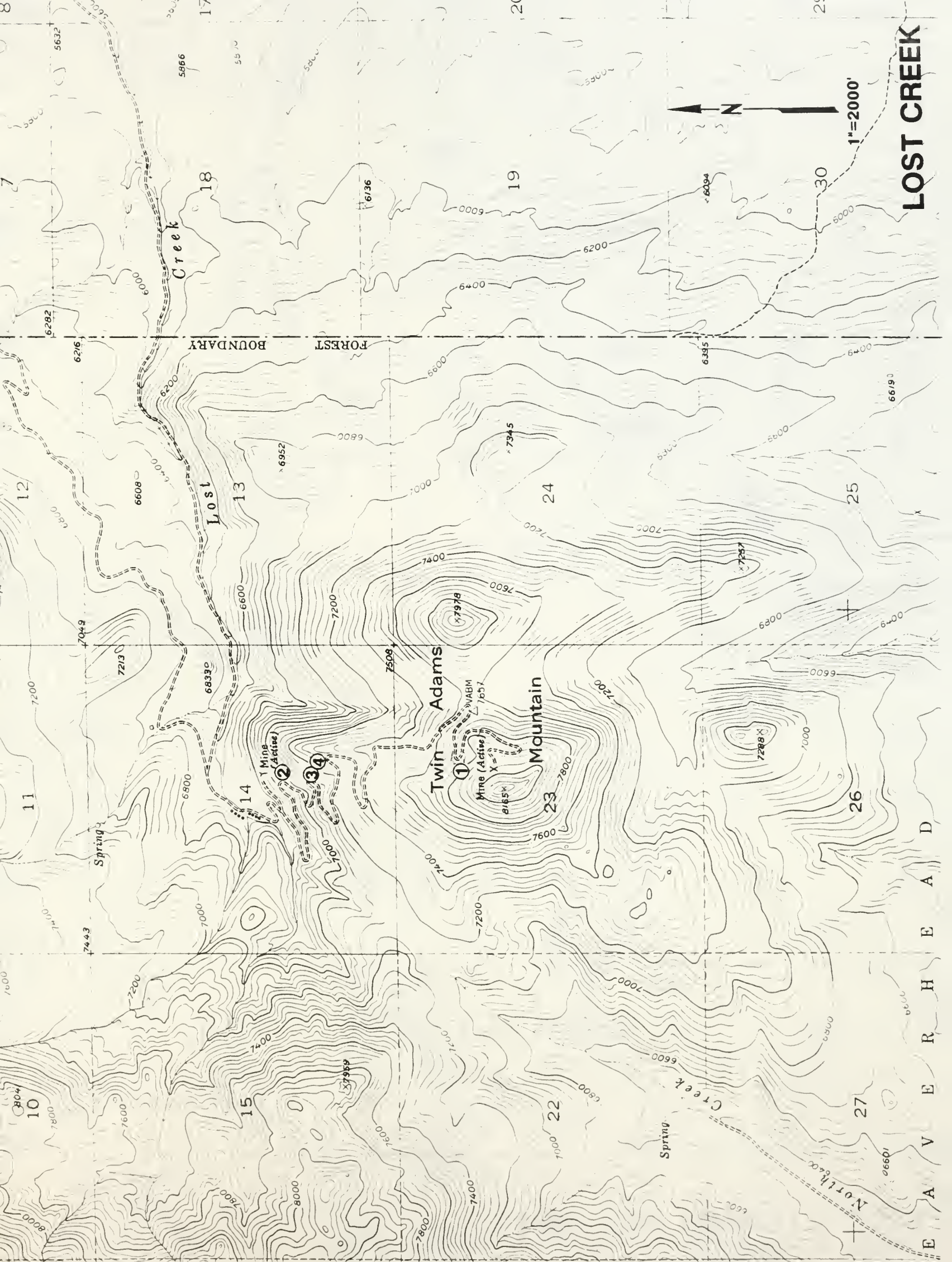






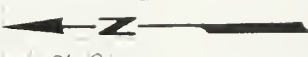






LOST CREEK

1"=2000'



FOREST BOUNDARY

Lost Creek

Twin Adams Mountain

Mine (Active)

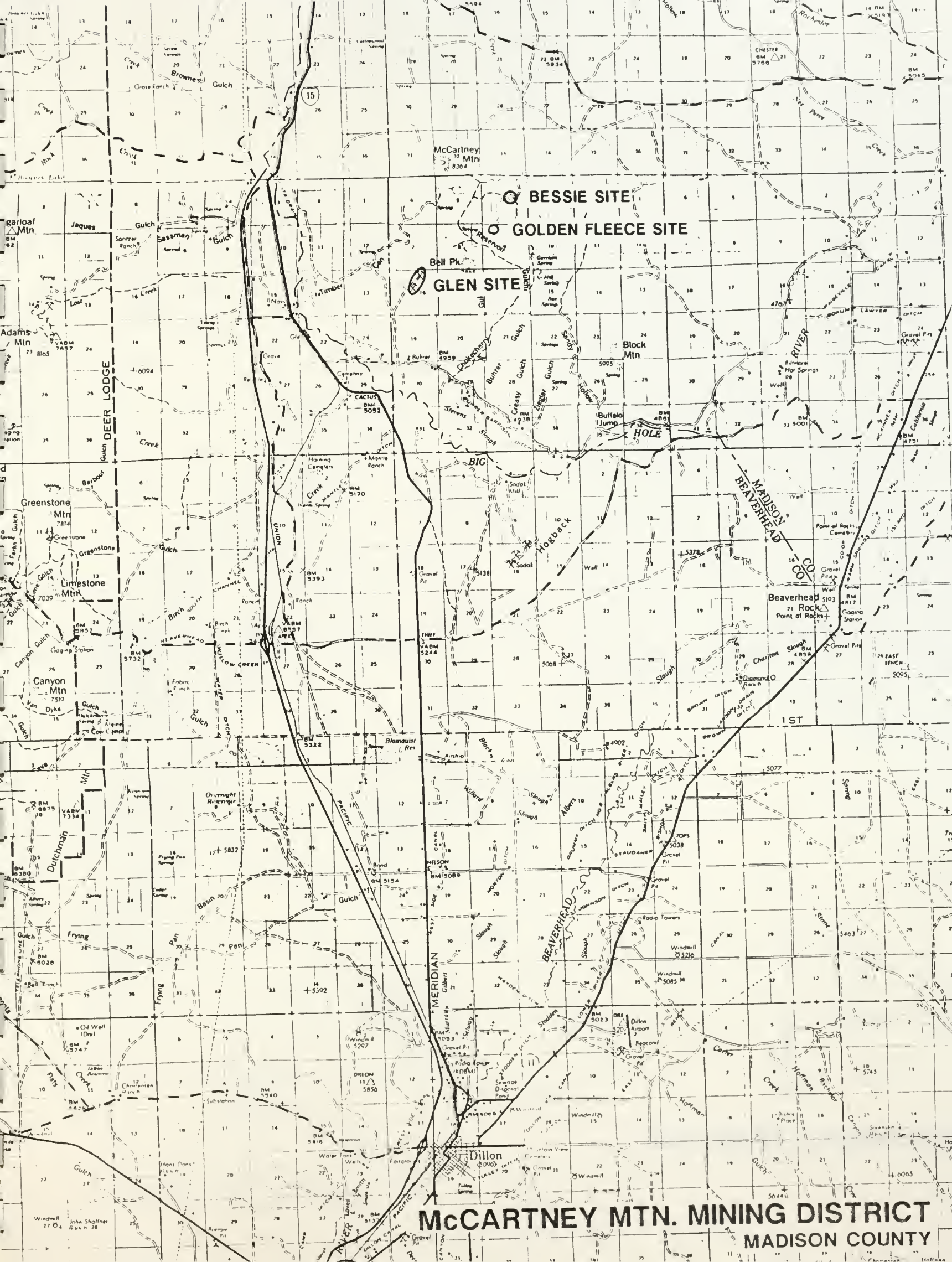
Spring

Spring

North Creek

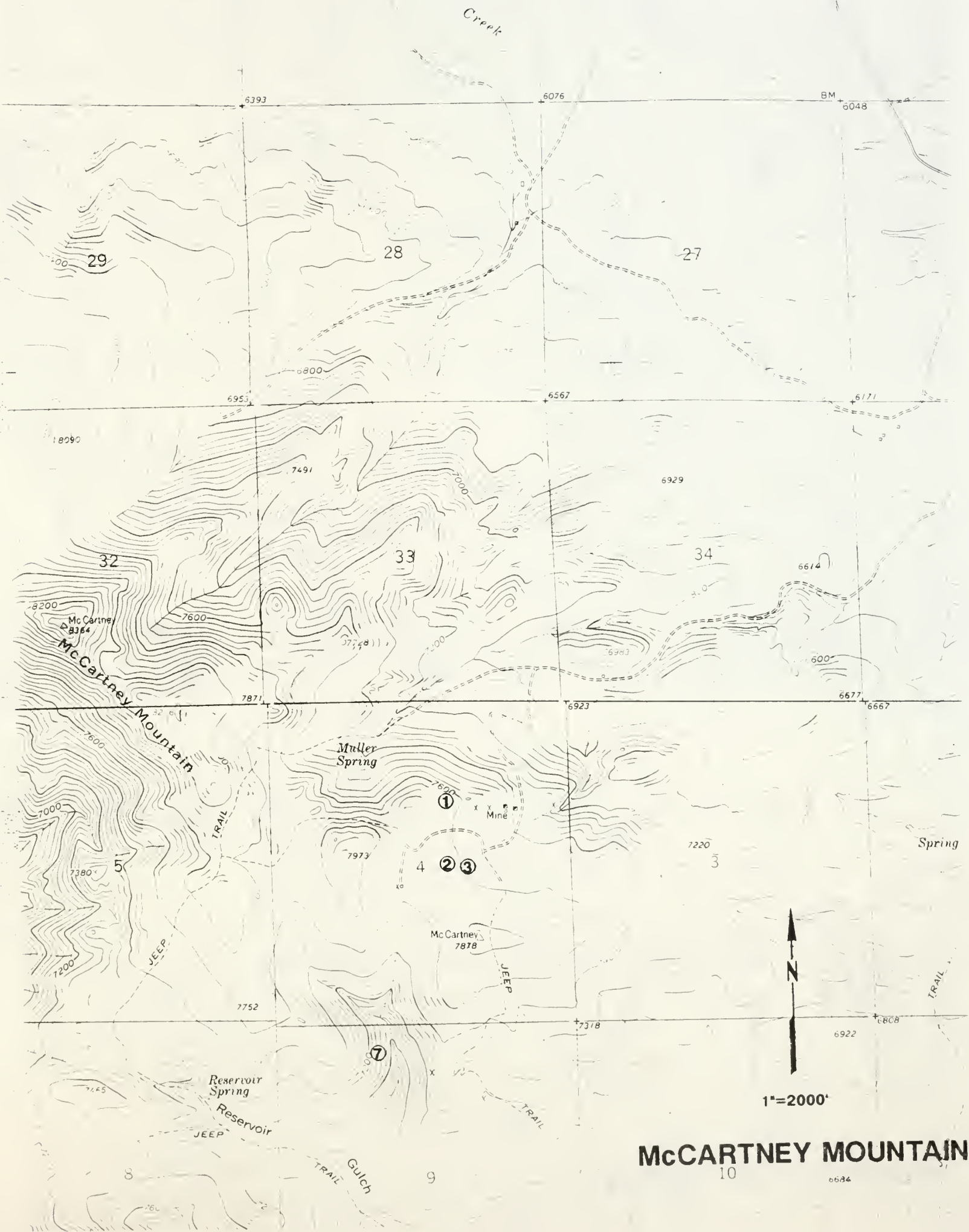




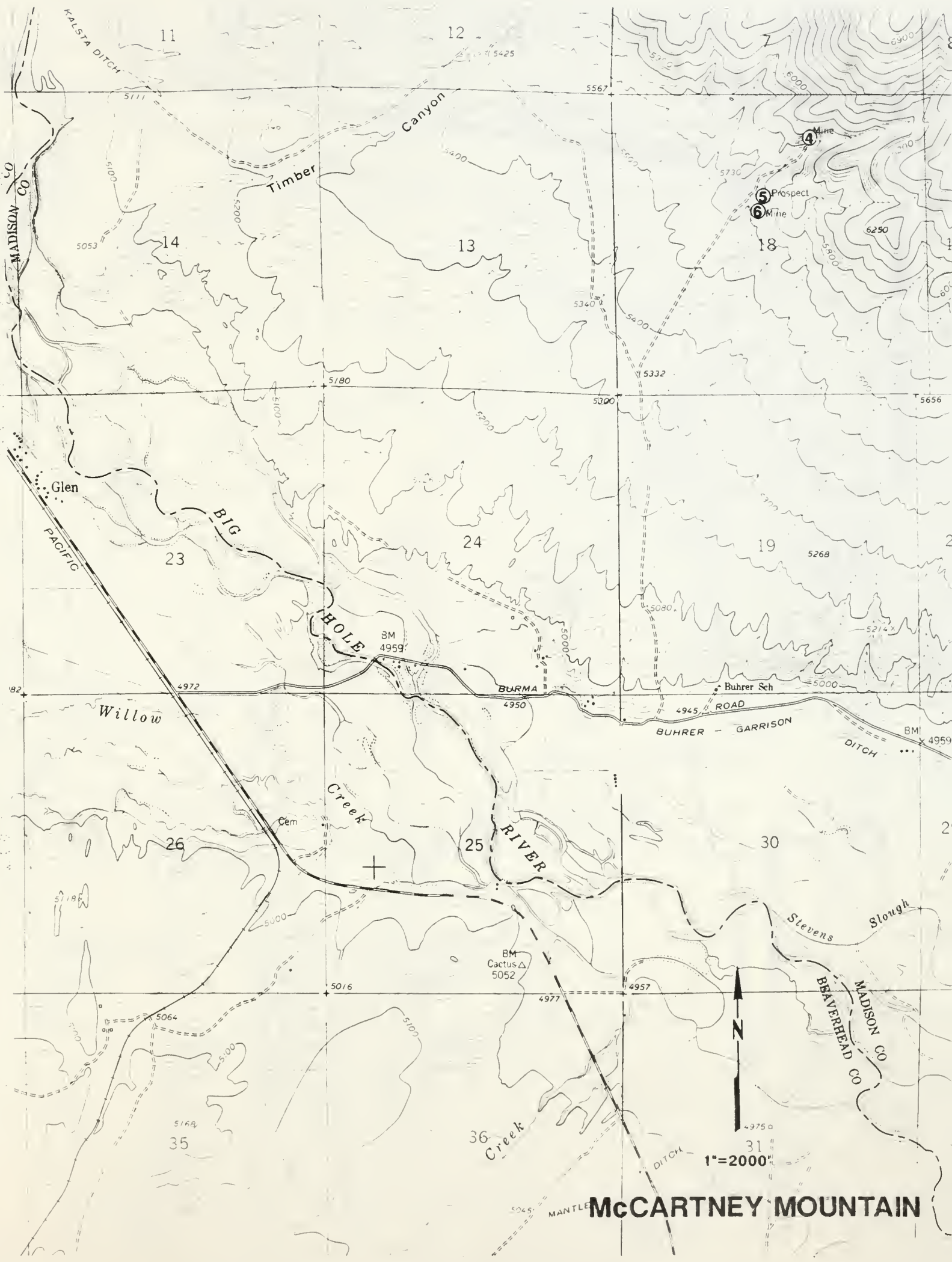








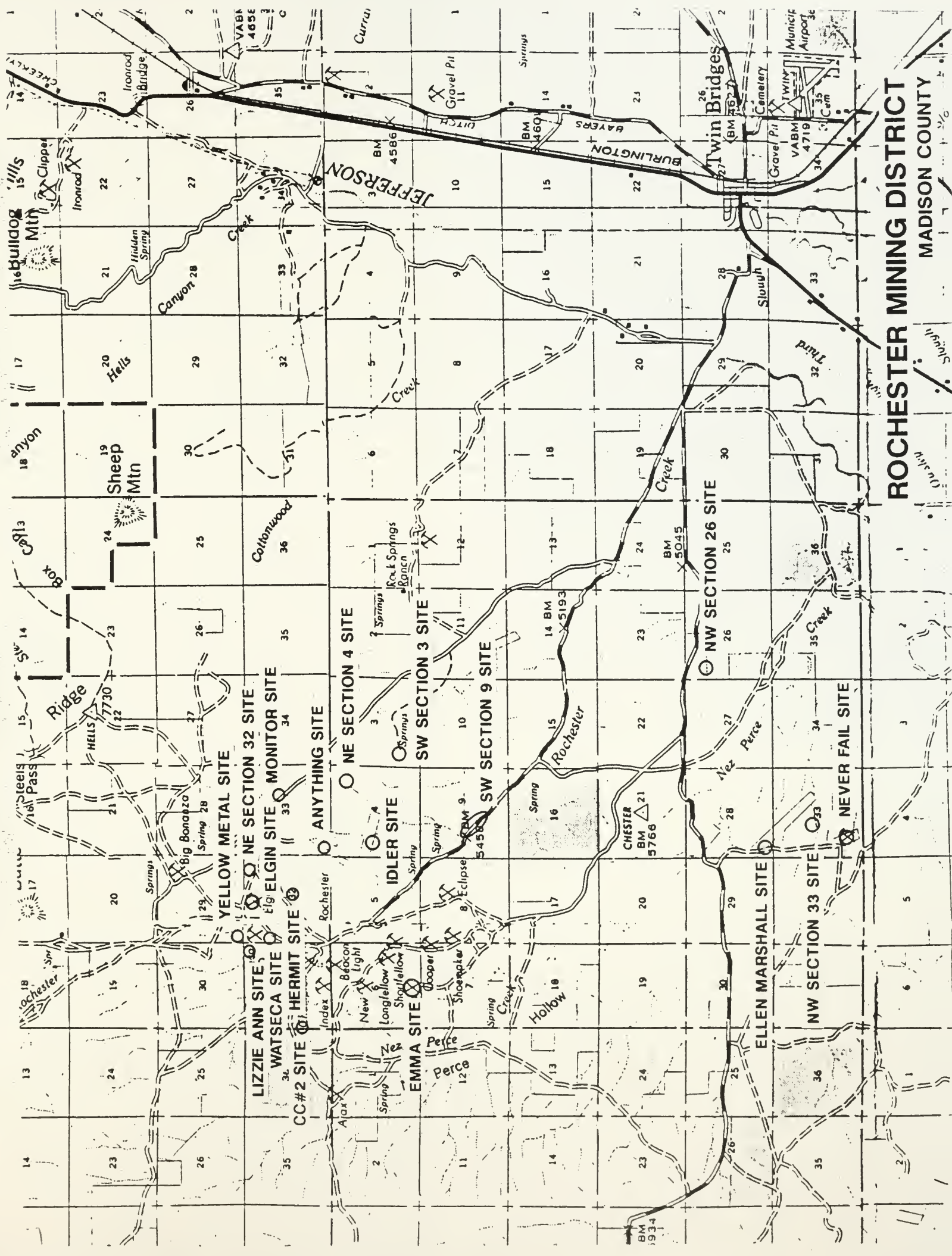




# McCartney Mountain







**ROCHESTER MINING DISTRICT**  
**MADISON COUNTY**











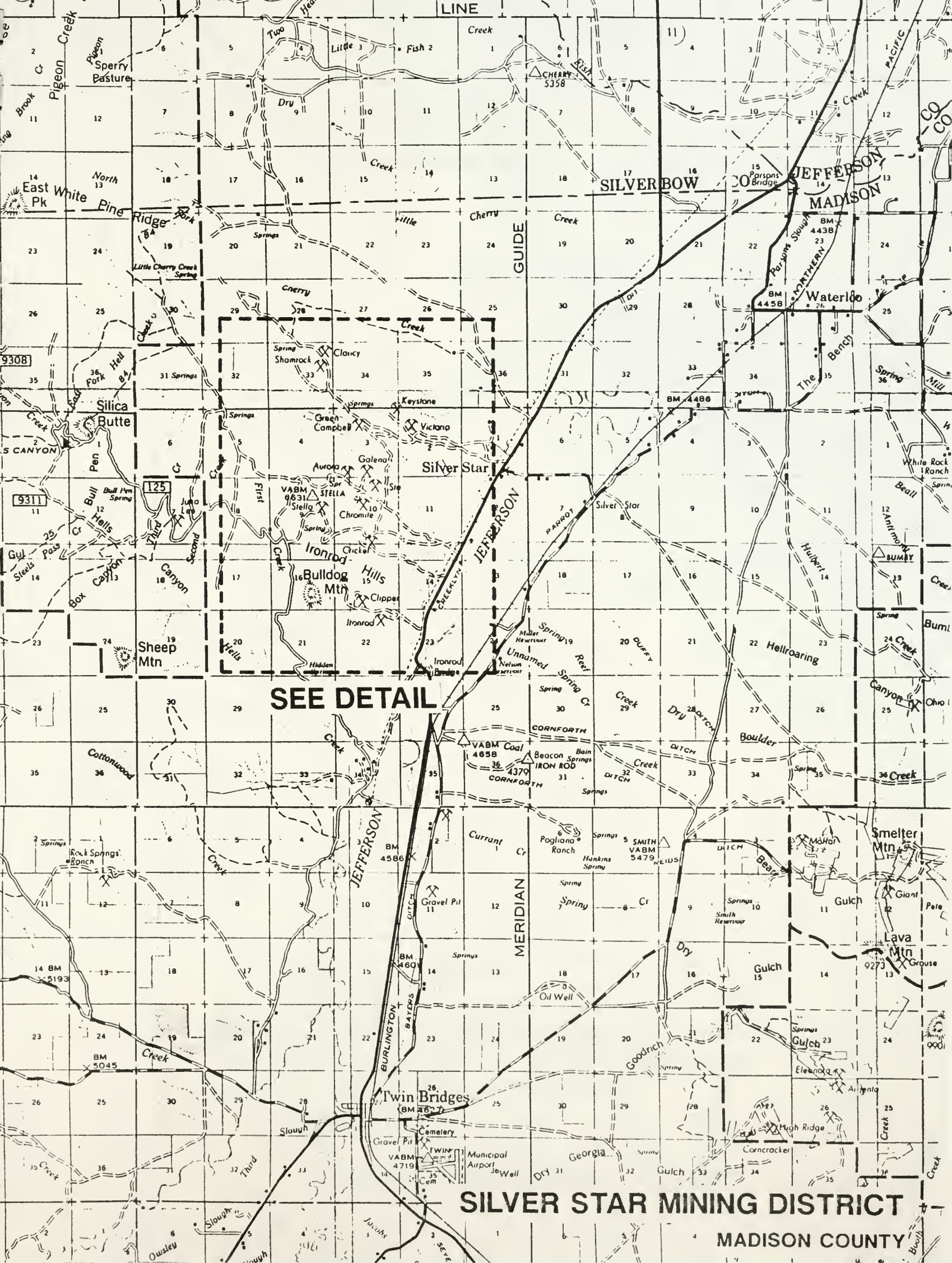


ROCHESTER

1"=2000'







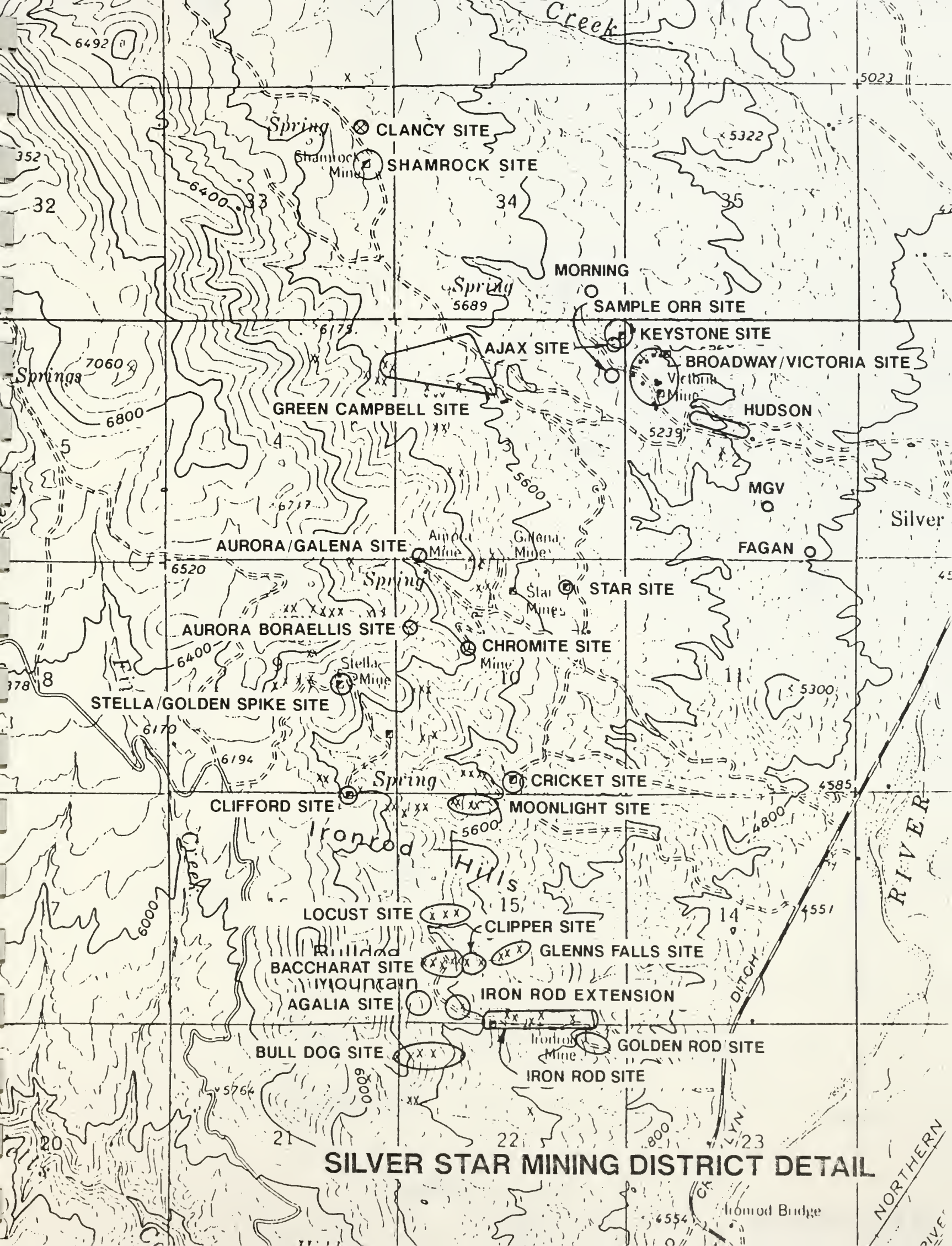
SEE DETAIL

SILVER STAR MINING DISTRICT

MADISON COUNTY



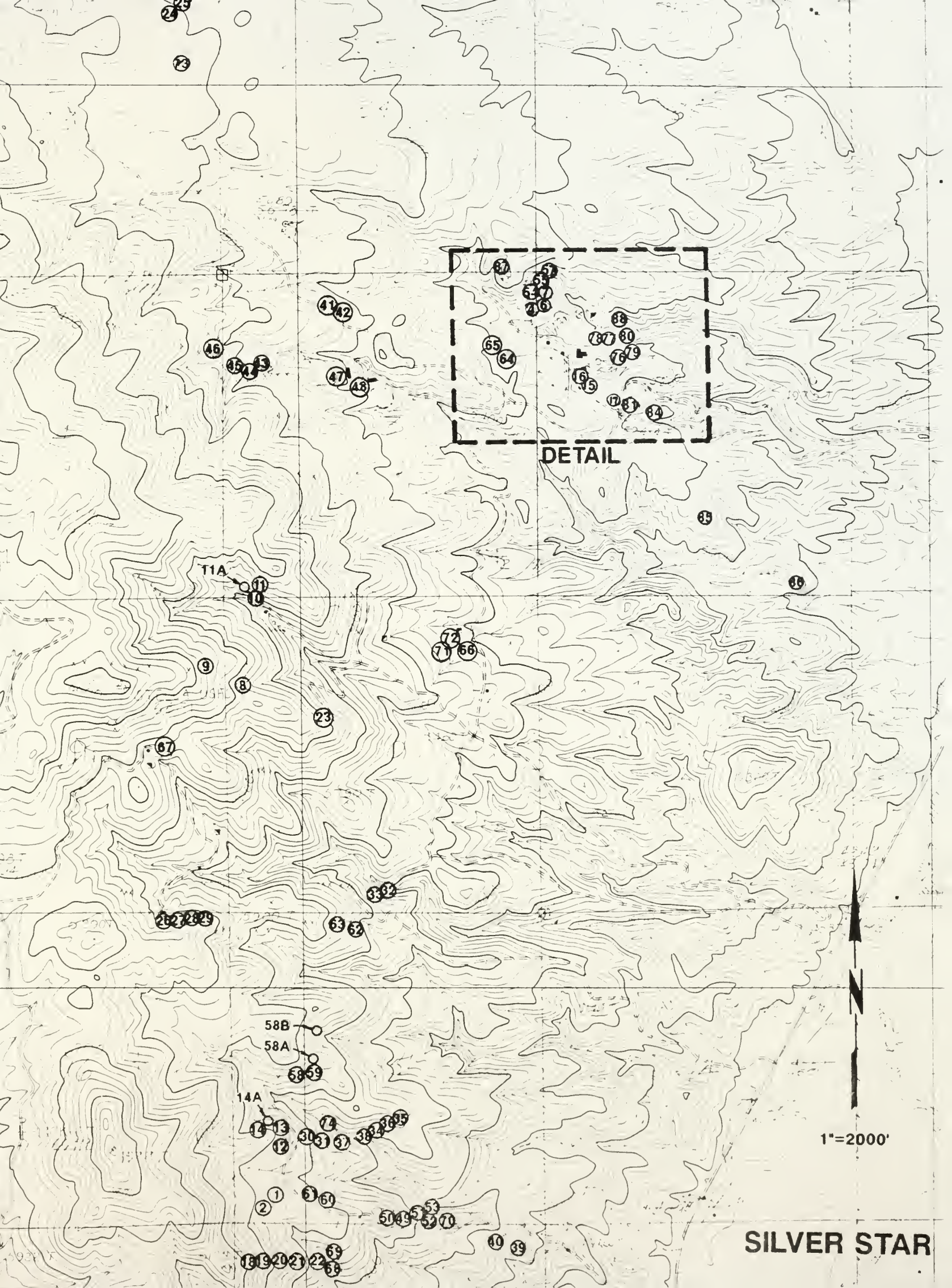




# SILVER STAR MINING DISTRICT DETAIL







DETAIL

1"=2000'

SILVER STAR





## **APPENDIX B**

### **FINAL PAY REQUEST, CHANGE ORDERS, AND WORK DIRECTIVES**



SECTION II

2.13 AFFIDAVIT ON BEHALF OF CONTRACTOR

STATE OF Montana

MONT A/E 88-46-110

COUNTY OF Lewis and Clark

DATE June 7, 1989

I certify to the best of my knowledge and belief that all work has been performed and materials supplied in strict conformance with the terms and conditions of the corresponding contract documents between Department of State Lands, the Owner, and Scott Construction, Inc., the Contractor, dated September 21, 1988 for the Hazardous Mine Opening Project, Phase 24, Beaverhead and Madison Counties, Montana  
(Project)

and further declare that all bills for materials, supplies, utilities, and for all other things furnished or caused to be furnished by the above-named Contractor and used in the execution of the above Contract have been fully paid, and there are no unpaid claims or demands of State Agencies, subcontractors, materialmen, mechanics, laborers or any others resulting from or arising out of work done or ordered to be done by said Contractor under the above-identified Contract.

In consideration of the prior and final payments made and all payments made for authorized changes, the Contractor releases and forever discharges the Owner from any and all obligations and liabilities arising by virtue of said Contract and authorized changes between the parties hereto, either verbal or in writing, and any and all claims and demands of every kind and character whatsoever against the Owner, arising out of or in any way relating to said Contract, and authorized changes.

This statement is made for the purpose of inducing the Owner to make Final Payment under the terms of the Contract, relying on the truth and statements contained therein.

Dated this 9 day of June, 1989, at Helena, Montana.

CONTRACTOR:

Scott Construction, Inc.

By

Robert Scott, Pres.

Subscribed and sworn to before me this 9th day of June, 1989

(SEAL)

Talley C. Sunder  
Notary Public for the State of Montana

Residing at TOSTON

My commission expires July 16, 1990



PAY REQUEST NO.5  
(FINAL PAY REQUEST)

FROM: May 1, 1989

TO: May 30, 1989

PROJECT NAME: Hazardous Mine Opening Project - Phase 24

LOCATION: Beaverhead and Madison  
Counties, Montana

PROJECT NO.: Mont A/E 88-46-110

NAME OF CONTRACTOR: Scott Const.

ADDRESS: P.O. Box 777  
East Helena, MT 59635

---

SUMMARY OR PROJECT STATUS

Amount of Original Contract	\$197,993.00
Amount of Approved Work Directive(s)	53,450.43
Amount of Approved Change Order(s)	-0-
TOTAL CONTRACT AMOUNT	\$251,443.43
Contract Time Used to Date	111.5 Days
Percentage of Contract Time Used	93%
Percentage of Contract Amount Earned	100%

---

Original Contract Amount Completed	\$202,105.50
Work Directive(s) Amount Completed	49,337.93
TOTAL To Date	251,443.43
Times 90% =	226,299.09
TOTAL AMOUNT Earned To Date	226,299.09
Less Previous Amount Earned	188,856.58
Plus Retainage for Contract Items 100% Complete	25,144.34
Amount Payable This Period	62,586.85
Less 1% Gross Receipts Tax	625.87
TOTAL DUE CONTRACTOR THIS PERIOD	61,960.98

---

Requested By: Scott Const.

Patti Scott  
(Contractor)

Date: 6-2-89

Checked By: Chen-Northern, Inc.

Jeremiah B. Bowser  
(Engineer)

Date: 6/2/89

Approved By: CEP Department of State Lands

Abandoned Mine Reclamation Bureau (Owner)

Date: \_\_\_\_\_









# PAY REQUEST NO. 5

## APPROVED WORK DIRECTIVES CHEN-NORTHERN, INC.

PROJECT: Hazardous Mine Opening Project  
Phase 24

MONT A/E 88-46-110

### ITEMIZATION OF QUANTITIES AND COSTS

ITEM NO.	DESCRIPTION	ESTIMATED PLAN QUANTITY	UNIT BID PRICE	UNITS OF WORK COMPLETED THIS REQUEST	UNITS OF WORK COMPLETED TO DATE	MATERIALS ON SITE	LESS MATERIALS INSTALLED	TOTAL COST OF COMPLETED WORK
2	Backfilling Mine Openings		4.95					
	Work Directive No. 10	263			263			1,301.85
4	Adit and Shaft Culverts		1600.00					
	Work Directive No. 4	3			3			4,800.00
	Work Directive No. 6	1			1			500.00
	Work Directive No. 8	3		0.1	3			4,800.00
	Work Directive No. 9	4			4			6,400.00
	Work Directive No. 11	4		4	4			6,400.00
5	Cable Net Mine Closure		1000.00					
6	Steel Gate Systems		2450.00					
	Work Directive No. 2	3			3			7,350.00
	Work Directive No. 5	1			1			526.08
	Work Directive No. 9	1			1	Install plus locking hatch		2,600.00
	Work Directive No. 10	1			1			2,450.00
7	Masonry Adit Door		1000.00					
	Work Directive No. 8	1			1			1,000.00
	Work Directive No. 14	1		1	1			1,000.00
	Steel Gate Adit Door		2000.00					
	Work Directive No. 13	1		1	1	Plus Timber Set		2,450.00
8	Attaching Owner-Provided Signs		28.00					
	Work Directive No. 1	5		4	4			112.00
	Work Directive No. 3	11		8	8			224.00
	Work Directive No. 7	4			4			112.00
	Work Directive No. 9	2			2			56.00
	Work Directive No. 12	3		3	3			84.00
9	Farm Fence		4.00					
	Work Directive No. 1	310			310			1,240.00
	Work Directive No. 3	632			632			2,528.00
	Work Directive No. 7	238			238			952.00
	Work Directive No. 9	113			113			452.00
	Work Directive No. 12	500		500	500			2,000.00

TOTAL WORK DIRECTIVES COMPLETED

49,277.93



# SECTION II

## 2.12 CHANGE ORDER

Order No. 1

Date: May 30, 1989

Agreement Date: September 21, 1988

NAME OF PROJECT: Hazardous Mine Openings - Beaverhead and Madison Counties Montana, Phase 24, Mont A/E 88-46-110

OWNER: Department of State Lands

CONTRACTOR: Scott Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MATERIALS	LABOR	EQUIPMENT	MISCELLANEOUS	TOTAL UNIT COST	
	<u>WORK DIRECTIVE NO. 1</u>						
6	Grate (delete 1)					2450.00	<2450.00>
9	Farm Fence (add 310 LF)					4.00	1240.00
8	Signs (add 5)					28.00	140.00
	<u>WORK DIRECTIVE NO. 2</u>						
6	Grates (Add 3)					2450.00	7350.00
4	Culvert (delete 1)					1600.00	<1600.00>
	<u>WORK DIRECTIVE NO. 3</u>						
9	Fence (add 632 LF)					4.00	2528.00
8	Signs (add 11)					28.00	308.00

TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISCELLANEOUS	<u>\$ 7516.00</u>
OVERHEAD & PROFIT @ _____ %	_____
GRAND TOTAL - THIS CHANGE ORDER	<u>\$ 7516.00</u>

Original Contract Price \$197,993.00

Current Contract Price Adjusted by Previous Order 0.00

Cost This Change Order (+ or -) + 7,516.00

New Contract Price Including This Change Order \$205,509.00

## SECTION II

The completion date as set forth in the Contract Documents shall be increased by zero calendar days.

The date for completion of all work will be June 15, 1989.

### Description and Justification for Change:

1. Work Directive No. 1: Delete installation of 1 grate at Rochester Dist. CC#2-#8 and install 310 lineal feet of fence and 5 ea owner furnished signs.
2. Work Directive No. 2: Install a 16 x 16 grate at Rochester Dist. Emma #16A additional opening (6x8x7), delete the culvert at Rochester Dist. NW Sec. 26 #30 and install a 16 x 16 grate and install a 10 x 10 grate at Rochester Dist. NW Sec. 26 #30A additional opening.
3. Work Directive No. 3: Install a total of 632 Lineal Feet of farm fence and 11 ea signs on 5 additional openings at Rochester District.

---

### SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agrees that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by Seven thousand five hundred sixteen dollars & no cents (\$ 7,516.00) (100% of the Change Order amount) and the penalty of the application Payment Bond or Bonds is hereby increased by Seven thousand five hundred sixteen (\$ 7,516.00) (100% of the Change Order amount). dollars & no cents

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

Billy J. Belt

SURETY

Transamerica Premier

By: Billy J. Belt  
(Seal)

Recommended by: Jeremiah B. Bowser, Engineer

Accepted by: Pat Scott, Pres Scott Const, Contractor

Approved by: \_\_\_\_\_, Owner



## SECTION II

### 2.12 CHANGE ORDER

Order No. 2

Date: May 8, 1989

Agreement Date: \_\_\_\_\_

NAME OF PROJECT: Hazardous Mine Openings - Beaverhead and Madison Counties Montana, Phase 24, Mont A/E 88-46-110

OWNER: Department of State Lands

CONTRACTOR: Scott Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MATERIALS	LABOR	EQUIPMENT	MISCELLANEOUS	TOTAL UNIT COST	
4	Work Directive No. 4 Cable Net (Delete 5)					1000.00	<5000.00>
3	Adit Culverts (Add 3)					1000.00	4800.00
5	Work Directive No. 5 Steel grate systems (Delete 1)					2450.00	<2450.00>
5	Fabricate steel grate and hatch (1)				128 SF @ \$4.11/ SF		526.08
3	Work Directive No. 6 Install 6' culvert (1)				500.00		500.00
8	Work Directive No. 7 Farm Fence (Add 238 LF)					4.00	952.00
7	Hazard Signs (Add 4)					28.00	112.00
4	Work Directive No. 8 Cable Nets (Delete 4)					1000.00	<4000.00>
6	Adit Door (Add 1)					1000.00	1000.00
3	Adit Culvert (Add 3)					1600.00	4800.00
2	Work Directive No. 9 Backfill mine opening(delete 68 cy)					4.95	<336.60>
5	Steel grate systems (add 1 delete)					2450.00	0.00
5	Steel grate locking hatch (add 1)				150.00		150.00
3	Culverts (add 4)					1600.00	6400.00
8	Farm Fence (Add 113 LF)					4.00	452.00
7	Signs (Add 2)					28.00	56.00
5	Work Directive No. 10 Steel grate system (add 1)					2450.00	2450.00
2	Backfill Mine Openings (add 263 CY)					4.95	1301.85

TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISCELLANEOUS

\$ 11,713.33

OVERHEAD & PROFIT @ \_\_\_\_\_ %

\$

GRAND TOTAL - THIS CHANGE ORDER

\$ 11,713.33

Original Contract Price

\$197,993.00

Current Contract Price Adjusted by Previous Order

205,509.00

Cost This Change Order (+ or -)

+ 11,713.33

New Contract Price Including This Change Order

\$217,222.33

## SECTION II

The completion date as set forth in the Contract Documents shall be increased by (1) one calendar days.

The date for completion of all work will be June 16, 1989.

### Description and Justification for Change:

All changes below are at Silver Star District Sites:

1. Delete cable nets for Iron Rod #52, Bulldog #18, #19 and #21 and Cricket #33. Cable nets at Iron Rod #52 and Bull Dog #18 sites were deleted because these adits have collapsed. Culverts were substituted for cable nets at Bull Dog #19, #21 and Cricket #33 due to incompetent rock resulting in hazardous working conditions. See Work Directive #4, dated 3-30-89.
2. Delete a prefabricated grate and install a grate with locking hatch to be fabricated onsite. This substitution was made due to difficult site access and non-standard size opening. See Work Directive #5, dated 3-30-89.
3. Install culvert with non-locking cover at the Baccharat #14A site. This site contained a previously unknown hazard that was secured with the culvert. See Work Directive #6, dated 4-3-89.
4. Install fencing and signs at openings #58A and #588. These two sites were added during the pre-construction meeting minutes. See Work Directive #7, dated 4-7-89.
5. Delete cable nets at Moonlight #62 Broadway/Victoria #88, Aurora Boraellis #9 and Hudson #81. Install an adit door at Moonlight #62 and culverts at Broadway/Victoria #88, Aurora Boraellis #9 and Hudson #81. These substitutions were made due to incompetent rock resulting in hazardous working conditions. See Work Directive #8, dated 4-12-89.
6. Delete backfill from Green Campbell sites #41, #45, #46, #47, #48. Substitute for these sites the following: a 16" x 24" grate and hatch for #41, culverts for sites #45, #46, #47, #48. Substitute fencing and signs for a grate at Green Campbell #43. These changes were made due to a new lessee of the property not allowing backfill.
7. Install a 4' x 10' grate without a hatch at the Cricket #32A site, a slope. Backfill Aurora/Galena #10A. These were previously unknown hazards that required attention.

### SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agrees that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by Eleven thousand seven hundred thirteen (\$11,713.33) (100% of the Change Order amount) and the penalty of the application Payment Bond or Bonds is hereby increased by Eleven thousand seven hundred thirteen dollars & 33 cents (\$11,713.33) (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

SURETY

Transamerica Premier

By: [Signature]

(Seal)

Recommended by: [Signature], Engineer

Accepted by: [Signature], Contractor

Approved by: [Signature], Owner



SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 1

PROJECT: Phase 24 Abandoned Mine Reclamation      DATE OF ISSUANCE: 10-16-88

OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Northern Engineering and Test.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Description: Delete installation of grate at Rochester Dist. CC#2-#8 and install 310 lineal feet of fence and 5 ea owner furnished signs.

Purpose of Work Directive Change: Opening size, depth & accessibility is such that the installation of a grate is not feasible.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

[ ] Time and materials      Fence = 310 LF  
   @ 4.00/LF  
[x] Unit Price              Fence = \$1240  
   Signs 5x\$28.00=\$140  
[ ] Cost plus fixed fee      Fence = \$1380  
   Grate Deduct =(2450)  
[ ] Other                      \$1380.00  
   -2450.00  
   -1070.00

Method of determining change in  
Contract Price:

[ ] Contractor's records

[ ] Engineer's records

[ ] Other \_\_\_\_\_

Estimated increase (decrease) in  
Contract Price: \$ (1070).  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: (1) days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Richard J. Hunter  
Owner

ACCEPTED BY: Robert Scott, Pres  
Contractor



SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 2

PROJECT: Phase 24 Abandoned Mine Reclamation      DATE OF ISSUANCE: 10-16-88

OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Northern Engineering and Test.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Description: Install a 16x16 grate at Rochester Dist. Emma #16A additional opening (6x8x?), delete the culvert at Rochester Dist. NW Sec. 26 #30 and install a 16x16 grate & install a 10x10 grate at Rochester Dist. NW Sec. 26 #30A additional opening.

Purpose of Work Directive Change: To eliminate hazards at newly found openings previously missed at these sites, and the opening shape at NW Sec. 26 #30 (Bell Shaped) is such that the installation of a shaft culvert is not feasible.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

☐ Time and materials Grates = 3EA x 2450  
Grates = 7350.00

☒ Unit Price Culvert Deduct = (1600.00)

☐ Cost plus fixed fee Culvert ~~7350.00~~  
Grate Deduct -1600.00 ~~5750.00~~

☐ Other -2450.00  
+1070.00 from JB

Estimated increase (decrease) in Contract Price: \$ 5750

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Method of determining change in Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other Work Directive No. 1  
12/19/88

Estimated increase (decrease) in Contract Time: 2 days. If

the change involves an increase, the estimated time is not to be exceeded without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Richard J. [Signature]  
Owner

ACCEPTED BY: Patti Scott Pres  
Contractor



SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 3

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 10-16-88

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Northern Engineering and Test.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s): Install a total of 632 Lineal Feet of farm fence and 11 ea signs on 5 additional openings at Rochester District

Description: Watseca sites per engineers directive and as discussed in the preconstruction conference.

Purpose of Work Directive Change: To eliminate hazards at newly found openings previously missed at this site.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

- ☐ Time and materials Fence = 632 LF  
@ \$4.00/LF  
☒ Unit Price Fence = 2528  
Signs = 11ea x \$28.00=\$308  
☐ Cost plus fixed fee Fence = \$2836  
Grate Deduct  
☐ Other \_\_\_\_\_

Method of determining change in  
Contract Price:

- ☐ Contractor's records  
☐ Engineer's records  
☐ Other \_\_\_\_\_

Estimated/increase (decrease) in  
Contract Price: \$ 2836.  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: 2 days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer  
ACCEPTED BY: Patti Scott, Pres  
Contractor

AUTHORIZED BY: Richard J. [Signature]  
Owner





RECEIVED

MAY 9 1989

SECTION II

STATE LANDS

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 4

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 3-30-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Delete Cable Nets at the following Silver Star District Sites: Iron Rod #52, Bulldog #18, #19, & #21, and Cricket #33.  
Install culverts at Silver Star District Sites Bulldog #19, #21 & Cricket #33.

**Purpose of Work Directive Change:**

Iron Rod #52 and Bulldog #18 adits have collapsed, therefore no hazard presently exists at these two sites.  
Bulldog #19, #21 and Cricket #33 sites are located in loose and fractured rock which make the installation of rock bolts very hazardous and non effective.

**Attachments:** (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price

Cable Nets 5 @ \$1,000.00/ea = <5,000.00>  
Culverts 3 @ \$1600.00/ea = \$4800.00

☐ Cost plus fixed fee

☐ Other \_\_\_\_\_

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other \_\_\_\_\_

Estimated increase (decrease) in  
Contract Price: \$ <200.00>

If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days.

If the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Susan McAnally  
Owner

ACCEPTED BY: Patti Scott, Pres.  
Contractor



MAY 9 1989

STATE LANDS

## SECTION II

## 2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 5PROJECT: Phase 24 Abandoned Mine  
ReclamationDATE OF ISSUANCE: 3-30-89OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine OpeningsENGINEER'S PROJECT NO. 88-3005.C

---

You are directed to proceed promptly with the following change(s):

Fabricate an 8' x 16' grate with locking hatch at Locust #58.

## Purpose of Work Directive Change:

Access for transporting a prefabricated grate is very difficult, and dimensions of grate required do not match those of the standard owner provided grates.

Attachments: (list documents supporting change)

---

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).Method of determining change in  
Contract Price:☐ Time and materials☒ Unit Price

Grate 1 @ \$2450 ea = &lt;\$2450.00&gt;

☐ Cost plus fixed fee☒ Other Negotiated cost

128 SF @ \$4.11/SF=\$526.08

Method of determining change in  
Contract Price:☐ Contractor's records☐ Engineer's records☐ Other \_\_\_\_\_Estimated increase (decrease) in  
Contract Price: \$ < 1923.92> .If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY:

Jeremiah B. Bowser  
Engineer

AUTHORIZED BY:

Susan McArally  
Owner

ACCEPTED BY:

Scott Scott, Pres.  
Contractor





RECEIVED

MAY 9 1989

STATE LANDS

SECTION II

2.11 WORK DIRECTIVE CHANGE.

(Instructions on Reverse Side)

No. 6

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 4-3-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Install a 6' x 36" diameter culvert with permanent (non locking) cover into a stope connection at Silver Star District, Baccharat #14A site

Purpose of Work Directive Change:

To secure an additional, previously unknown hazardous mine opening.

Attachments:

This addition is made per field agreement with Ed Genster of DSL on 4-12-89.

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☐ Unit Price

☐ Cost plus fixed fee

☒ Other field negotiated

Install 6' x 36' culvert = \$500.00

Estimated increase (decrease) in  
Contract Price: \$ 500.00

If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other \_\_\_\_\_

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY:

Jeremiah B. Bowser  
Engineer

AUTHORIZED BY:

Susan M. Mally  
Owner

ACCEPTED BY:

Patti Scott, Pres.  
Contractor



RECEIVED

MAY 9 1989

SECTION II

STATE LANDS

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 7

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 4-7-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Install fencing at two additional adit/decline openings at the Silver Star District Locust Site. Field designated openings #58A and 58B will require 117 LF and 121 LF respectively and each site will require the installation of two signs/decline,

Purpose of Work Directive Change:

To eliminate existing hazards as noted in the preconstruction meeting minutes.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

- ☐ Time and materials  
☒ Unit Price  
Fence 238 LF @ \$4.00/LF = \$952.00  
Signs 4 @ \$28.00/ea = \$112.00  
☐ Cost plus fixed fee  
☐ Other

Method of determining change in  
Contract Price:

- ☐ Contractor's records  
☐ Engineer's records  
☐ Other

Estimated increase (decrease) in  
Contract Price: \$ 1064.00.  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY:

Jeremiah B. Brown  
Engineer

AUTHORIZED BY:

James McAnally  
Owner

ACCEPTED BY:

Scott Scott  
Contractor





MAY 9 1989

STATE LANDS

## SECTION II

## 2.11 WORK DIRECTIVE CHANGE.

(Instructions on Reverse Side)

No. 8

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 4-12-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Delete cable nets at Silver Star District sites Moonlight #62, Broadway/Victoria #88, Aurora Boraellis #9 and Hudson #81. Install an adit door at Moonlight #62, and culverts @ Broadway/Victoria #88, Aurora Boraellis #9 and Hudson #81.

Purpose of Work Directive Change:

All portals consist of loose fractured rock and soil. Installation of cable net rock bolts is highly dangerous and cannot be performed effectively.

Attachments: (list documents supporting change)

Installation of adit door @ Moonlight #62 is confirmed this date by Ed Gensler of DSL.

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price

Cable nets 4 @ \$1,000.00/ea = <4,000.00>

Adit door 1 @ \$1,000.00/ea = 1000.00

Culvert 3 @ \$1,600.00/ea = \$4,800.00

☐ Cost plus fixed fee

☐ Other

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other \_\_\_\_\_

Estimated increase (decrease) in  
Contract Price: \$ 1800.00.

If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If

the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Susan McQually  
Owner

ACCEPTED BY: Pat Scott, Pres.  
Contractor





RECEIVED

MAY 9 1989

STATE LANDS

SECTION II

2.11 WORK DIRECTIVE CHANGE.

(Instructions on Reverse Side)

No. 9

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 4-17-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Delete adit/shaft backfills @ Green Campbell #'s 41, 45, 46, 47, & 48 (36, 11, 9, 11 & 1 CYDS respectively) install a 16' x 24' grate and fabricate a locking hatch at opening #41 and install culverts @ openings # 45, 46, 47 & 48. Substitute fencing for a grate at Green Campbell #43.

Purpose of Work Directive Change:

John Magnus, new lessee, will not accept backfill. A grate could not be properly placed at Green Campbell #43.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price

Backfill 68 CYDS @ 4.95/cyd = <\$336.60>

Signs 2 @ \$28.00 each = \$56.00

Fencing 113 LF @ \$4.00/LF = \$452.00

Culverts = 4 @ \$1,600.00 = \$6,400.00

Grate + 1 and - 1 EA = \$0.00

☐ Cost plus fixed fee

☒ Other Field Negotiated

Locking hatch = \$150.00

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other \_\_\_\_\_

Estimated increase (decrease) in  
Contract Price: \$ 6721.40

If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

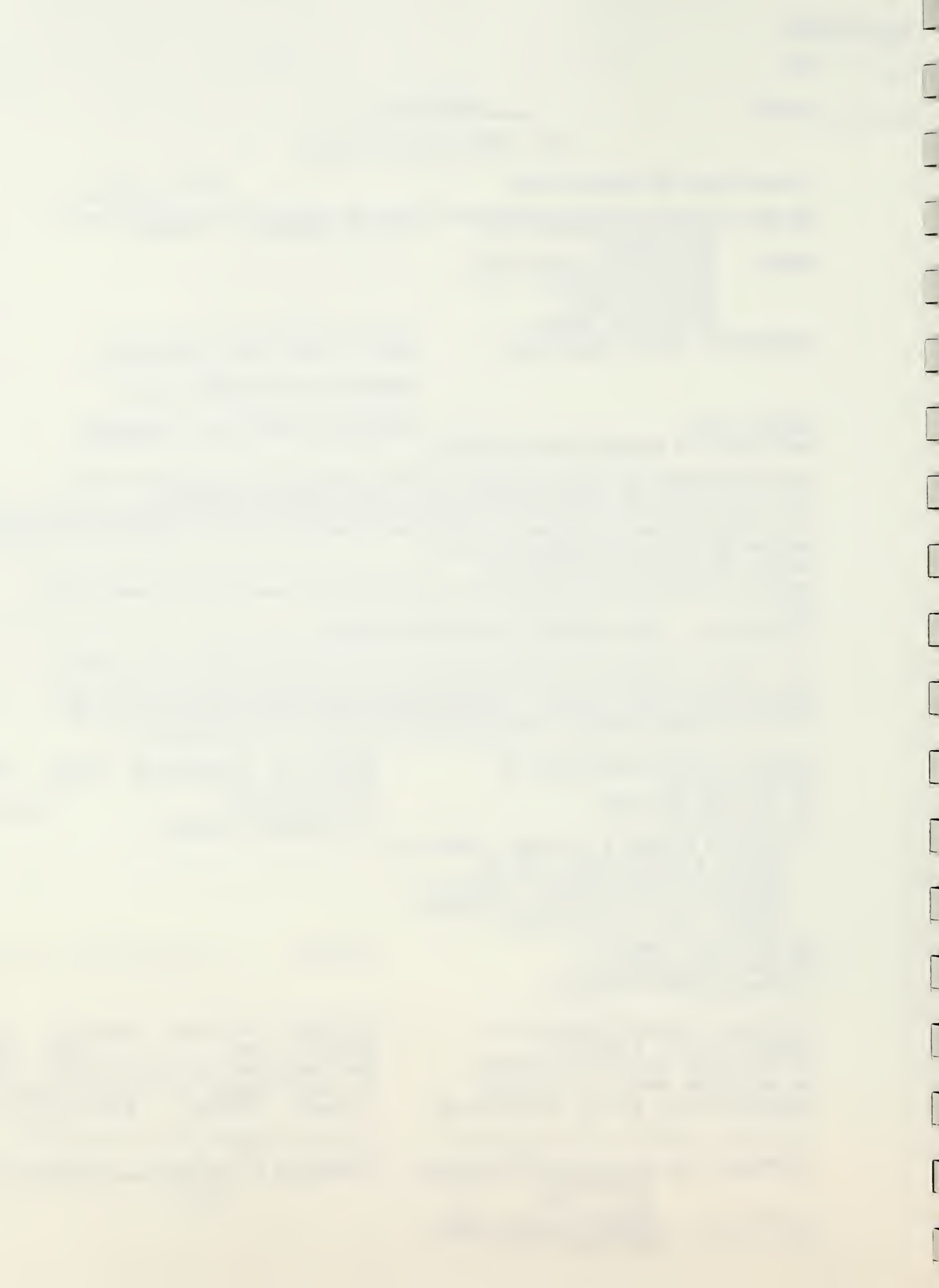
Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If

the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Steven M. McRally  
Owner

ACCEPTED BY: Scott Construction  
Contractor



RECEIVED

MAY 9 1989

STATE LANDS

SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 10

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 4-12-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Install a 4' x 10' grate at Cricket #32A stope (additional opening) hatch is not required due to connection with #32 decline. Backfill Aurora/Galena #10A.

Purpose of Work Directive Change:

To eliminate two previously unknown hazard.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price

1 Grate = \$2450.00

263 CY @ \$4.95/cy = \$1301.85

☐ Cost plus fixed fee

☐ Other

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other

Estimated increase (decrease) in  
Contract Price: \$ 3751.85.  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Susan McAnally  
Owner

ACCEPTED BY: Patti Scott, Pres.  
Contractor





# SECTION II

## 2.12 CHANGE ORDER

Order No. 3

Date: May 30, 1989

Agreement Date: September 21, 1988

NAME OF PROJECT: Hazardous Mine Openings - Beaverhead and Madison Counties Montana, Phase 24, Mont A/E 88-46-110

OWNER: Department of State Lands

CONTRACTOR: Scott Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MATERIALS	LABOR	EQUIPMENT	MISCELLANEOUS	TOTAL UNIT COST	
	<u>WORK DIRECTIVE NO. 11</u>						
	Cable nets (delete 4)					1000.00	<4000.00>
	Culverts (add 4)					1600.00	6400.00
	<u>WORK DIRECTIVE NO. 12</u>						
6	Grates (delete 1)					2450.00	<2450.00>
4	Fence (add 500 LF)					4.00	2000.00
8	Signs (add 3)					28.00	84.00
	<u>WORK DIRECTIVE NO. 13</u>						
7	Masonry door (delete 1)					1000.00	<1000.00>
	Adit Gate (1)				2000.00		2000.00
	Timber Set (1)				450.00		450.00
	<u>WORK DIRECTIVE NO. 14</u>						
5	Cable net (delete 1)					1000.00	<1000.00>
7	Masonry door (add 1)					1000.00	1000.00
	<u>WORK DIRECTIVE NO. 15</u>						
6	Grates (add 4)					2450.00	9800.00
4	Culverts (delete 2)					1600.00	<3200.00>
2	Backfill (add 3698 cy)					4.95	18305.10
9	Fence (add 1472 LF)					4.00	5888.00
8	Signs (delete 2)					28.00	< 56.00>

TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISCELLANEOUS

\$ 31,771.10 34,221.10 JB

OVERHEAD & PROFIT @ \_\_\_\_\_ %

GRAND TOTAL - THIS CHANGE ORDER

\$ 31,771.10 34,221.10 JB

Original Contract Price

\$197,993.00

Current Contract Price Adjusted by Previous Order

\$217,222.33

Cost This Change Order (+ or -)

+ 34,221.10

New Contract Price Including This Change Order

\$251,443.43

## SECTION II

The completion date as set forth in the Contract Documents shall be unchanged by zero calendar days.

The date for completion of all work will be June 16, 1989.

### Description and Justification for Change:

1. Work Directive No. 11: Delete cable nets for McCartney Mtn. district, Glen #4, #5, and #6 sites, and Rochester district SW Section 3 site. Install culverts with locking hatches at these sites.
2. Work Directive No. 12: Delete the grate at McCartney Mtn. district, Bessie #1 site, and install 500 L.F. of farm fence and 3 signs.
3. Work Directive No. 13: Substitute an adit gate for a masonry door at Lost Fraction site #1, Lost Creek district. Installation will include placement of a timber set.
4. Work Directive No. 14: Substitute a masonry door for a cable net at Keystone #55 site, Silver Star District.
5. Work Directive No. 15: Install 3 grates, per reclamation list but not accounted for on the proposed bid sheet, delete 2 culverts listed on the proposal bid sheet but not included on the reclamation list, install 1472 LF of farm fence, delete 2 signs and place 3698 cyds of backfill not accounted for in the original bid quantities. Also install a contractor fabricated grate at Locust #58 as installation of this grate was deleted on Work Directive #5.

---

## SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agrees that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by Thirty one thousand seven hundred seventy one dollars & no cents (\$ 31,771.00) (100% of the Change Order amount) and the penalty of the application Payment Bond or Bonds is hereby increased by Thirty one thousand seven hundred (\$ 31,771.00) (100% of the Change Order amount). seventy one dollars & no cents

COUNTERSIGNED BY MONTANA  
RESIDENT AGENT

Billy J. Cobb

SURETY

Transamerica Premier

By: Ed Cobb

(Seal)

Recommended by:

Jeremiah B. Boushey

, Engineer

Accepted by:

Patt Scott, Pres Scott Const

, Contractor

Approved by:

, Owner

SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 11

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 5-4-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Delete cable nets for McCartney Mtn. district, Glen #4, #5, and #6 sites, and Rochester district SW Section 3 site. Install culverts with locking hatches at these sites

Purpose of Work Directive Change: All portals consist of loose, fractured rock and soil. Installation of cable net rock bolts is highly dangerous and cannot be performed effectively.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

Method of determining change in  
Contract Price:

☐ Time and materials

☐ Contractor's records

☒ Unit Price  
cable nets -4 @ \$1000.00/ea = (\$4,000.00)  
culverts +4 @ \$1600.00/ea = \$6,400.00

☐ Engineer's records

☐ Cost plus fixed fee

☐ Other \_\_\_\_\_

☐ Other

Estimated increase (decrease) in  
Contract Price: \$ 2,400.00.  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bawse  
Engineer

AUTHORIZED BY: Susan McQually  
Owner

ACCEPTED BY: Patricia Scott  
Contractor





SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 12

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 5-5-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Delete the grate at McCartney Mtn. district, Bessie #1 site, and install 500 L.F. of farm fence and 3 signs.

Purpose of Work Directive Change: This site is located adjacent to a highwall hazard, and the installation of a grate would be ineffective.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price

grates -1 @ \$2450.00 = (\$2450.00)  
fence +500 LF @ \$4.00/LF = \$2000.00  
signs +3 @ \$28.00/ea = \$84.00

☐ Cost plus fixed fee

☐ Other

Estimated increase (decrease) in  
Contract Price: \$ (366.00).  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bawse  
Engineer

AUTHORIZED BY: Steven McNelly  
Owner

ACCEPTED BY: Pat Scott  
Contractor





SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 13

PROJECT: Phase 24 Abandoned Mine  
Reclamation

DATE OF ISSUANCE: 5-9-89

OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Substitute an adit gate for a masonry door at Lost Fraction site #1, Lost Creek district.

Installation will include placement of a timber set.

Purpose of Work Directive Change: Entrance is unstable and existing timbers will not support a gate.

Attachments: (list documents supporting change) Gate cost based on Phase 21 bid price of \$2000.00/ea.

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price

adit gate 1ea @ \$2000.00 = \$2000.00

timber set 1ea @ \$450.00 = \$450.00

adit door -1ea @ \$1000.00 = (\$1000.00)

☐ Cost plus fixed fee

☒ Other negotiated

Estimated increase (decrease) in  
Contract Price: \$ 1,450.00

If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other \_\_\_\_\_

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Susan McNally  
Owner

ACCEPTED BY: Patti Scott  
Contractor



SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 14

PROJECT: Phase 24 Abandoned Mine Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620  
CONTRACTOR: Scott Construction  
DATE OF ISSUANCE: 5-26-89  
OWNER'S PROJECT NO. 88-46-110  
ENGINEER: Chen-Northern, Inc.  
CONTRACT FOR: Reclamation of Hazardous Mine Openings  
ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s):

Substitute a masonry door for a cable net at Keystone #55 site, Silver Star district.

Purpose of Work Directive Change: Adit is unstable for drilling cable net rock bolts

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

☐ Time and materials

☒ Unit Price

cable net -1ea @ \$1000.00 = (\$1000.00)

adit door 1ea @ \$1000.00 = \$1000.00

☐ Cost plus fixed fee

☐ Other negotiated

Method of determining change in Contract Price:

☐ Contractor's records

☐ Engineer's records

☐ Other \_\_\_\_\_

Estimated increase (decrease) in Contract Price: \$ 0.00

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Estimated increase (decrease) in Contract Time: \_\_\_\_\_ days.

If the change involves an increase, the estimated time is not to be exceeded without further authorization.

RECOMMENDED BY: Jeremiah B. Bowser  
Engineer

AUTHORIZED BY: Susan McAnally  
Owner

ACCEPTED BY: Scott Scott  
Contractor





SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 15

PROJECT: Phase 24 Abandoned Mine  
Reclamation  
OWNER: Department of State Lands  
State of Montana  
1625 11th Ave.  
Helena, MT 59620

DATE OF ISSUANCE: 5-26-89

CONTRACTOR: Scott Construction

OWNER'S PROJECT NO. 88-46-110

ENGINEER: Chen-Northern, Inc.

CONTRACT FOR:  
Reclamation of Hazardous Mine Openings

ENGINEER'S PROJECT NO. 88-3005.C

You are directed to proceed promptly with the following change(s): Install 3 grates, per reclamation list but not accounted for on the proposal bid sheet, delete 2 culverts listed on the proposal bid sheet but not included on the reclamation list, install 1472 L.F. of farm fence, delete 2 signs and place 3698 cyds of backfill not accounted for in the original bid quantities. Also install a contractor fabricated grate at Locust #58 as installation of this grate was deleted on work directive #5.

Purpose of Work Directive Change: Stated above.

Attachments: (list documents supporting change)

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in  
Contract Price:

☐ Time and materials

☒ Unit Price    +4 grates = \$9800.00  
                     -2 culverts = (\$3200.00)  
                     +1472 LF fence = \$5888.00  
                     -2 signs = (\$56.00)  
                     +3698 CYDs = \$18,305.10

Estimated increase (decrease) in  
Contract Price: \$ 30,737.10.  
If the change involves an increase,  
the estimated amount is not to be  
exceeded without further authorization.

Method of determining change in  
Contract Price:

☐ Contractor's records

☐ Engineer's records

Estimated increase (decrease) in  
Contract Time: \_\_\_\_\_ days. If  
the change involves an increase, the  
estimated time is not to be exceeded  
without further authorization.

RECOMMENDED BY:

Jeremiah B. Bowser  
Engineer

AUTHORIZED BY:

Susan McAnally  
Owner

ACCEPTED BY:

Patti Scott  
Contractor



## APPENDIX C

### SLIDES



PHASE 24 CONSTRUCTION PHOTO LOG

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
1	5-09-89	Apex	Sodak #1	Before 20' west of opening
2	5-09-89	Apex	Sodak #1	During 20' west of opening, backfilling w/cat 931 loader
3	5-10-89	Apex	Sodak #1	After 20' west of opening
4	5-09-89	Apex	Sodak #2	Before 40' south of opening
5	5-09-89	Apex	Sodak #2	During 40' south of opening backfilling w/cat 931 loader
6	5-09-89	Apex	Sodak #2	After 40' south of opening
7	5-09-89	Apex	Sodak #3	Before 30' east of opening
8	5-09-89	Apex	Sodak #3	During 30' east of opening backfilling w/cat 931 loader
9	5-09-89	Apex	Sodak #3	After 30' east of opening
10	5-09-89	Apex	Sodak #4	Before 30' east of opening
11	5-09-89	Apex	Sodak #4	During 30' east of opening, removing timber w/cat 931 loader
12	5-09-89	Apex	Sodak #4	After 30' east of opening
13	5-04-89	Lost Creek	Lost Fraction #1	Before 30' north of opening
14	5-10-89	Lost Creek	Lost Fraction #1	During 30' north of opening, welding gate hinges
15	5-04-89	Lost Creek	Sugar Loaf #3	Before 30' west of opening
16	5-05-89	Lost Creek	Sugar Loaf #2	During 40' west of opening, installing line posts
17	5-05-89	Lost Creek	Sugar Loaf #2/3	After 40' west of opening
18	5-04-89	Lost Creek	Sugar Loaf #4	Before 30' west of opening, south side
19	5-04-89	Lost Creek	Sugar Loaf #4	Before 30' west of opening, north side
20	5-05-89	Lost Creek	Sugar Loaf #4	After 30' west of opening, north side
21	5-05-89	Lost Creek	Sugar Loaf #4	After 30' west of opening, south side
22	7-21-87	McCartney Mtn	Bessie #1	Before 20' east of opening
23	5-11-89	McCartney Mtn	Bessie #1	During 30' south of opening, installing wire clips
24	5-03-89	McCartney Mtn	Bessie #2	Before 20' north of opening
25	5-05-89	McCartney Mtn	Bessie #2	After 20' north of opening
26	5-05-89	McCartney Mtn	Bessie #2	After 20' south of opening
27	5-05-89	McCartney Mtn	Bessie #3	Before 20' north of opening
28	5-05-89	McCartney Mtn	Bessie #3	During 20' north of opening, hand placing culvert backfill
29	5-05-89	McCartney Mtn	Bessie #3	After 20' north of opening
30	5-08-89	McCartney Mtn	Glenn #4	Before 30' east of opening
31	5-08-89	McCartney Mtn	Glenn #4	During 30' east of opening, hand placing culvert backfill
32	5-08-89	McCartney Mtn	Glenn #4	After 30' east of opening
33	5-08-89	McCartney Mtn	Glenn #5	Before 30' east of opening
34	5-08-89	McCartney Mtn	Glenn #5	During 20' east of opening, hand placing culvert backfill
35	5-08-89	McCartney Mtn	Glenn #5	After 20' east of opening
36	7-03-87	McCartney Mtn	Golden Fleece #7	Before 10' east of opening
37	5-11-89	McCartney Mtn	Golden Fleece #7	During 30' east of opening, hand placing culvert sections
38	5-11-89	McCartney Mtn	Golden Fleece #7	After 30' east of opening
39	10-05-88	Rochester	Agnes #1	Before 15' south of opening
40	10-05-88	Rochester	Agnes #1	During 15' south of opening, levelling w/580D hoe
41	5-15-89	Rochester	Agnes #1	After 15' south of opening
42	10-28-88	Rochester	Agnes #2	Before 20' north of opening
43	10-28-88	Rochester	Agnes #2	During 20' north of opening, assembling large grate
44	5-15-89	Rochester	Agnes #2	After 20' north of opening
45	3-09-89	Rochester	Anything #3	Before 20' west of opening





PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
46	3-09-89	Rochester	Anything #3	During, 20' west of opening, backfilling w/D-7 cat dozer
47	3-10-89	Rochester	Anything #3	After, 20' west of opening
48	3-09-89	Rochester	Anything #3A	Before, 20' east of opening
49	3-09-89	Rochester	Anything #3A	During, 20' east of opening, backfilling w/D-7 cat dozer
50	3-10-89	Rochester	Anything #3A	After, 20' east of opening
51	3-09-89	Rochester	Anything #4	Before, 20' east of opening
52	3-09-89	Rochester	Anything #4	During, 20' east of opening, backfilling w/D-7 cat dozer
53	3-10-89	Rochester	Anything #4	After, 20' east of opening
54	3-10-89	Rochester	Anything #3/3A/4	After, 50' - 200' south of openings
55	3-09-89	Rochester	Anything #5	Before, 30' east of opening
56	3-09-89	Rochester	Anything #5	Before, 30' east of opening
57	3-09-89	Rochester	Anything #5	During, 30' east of opening, backfilling w/D-7 cat dozer
58	3-10-89	Rochester	Anything #5	After, 30' east of opening
59	3-09-89	Rochester	Anything #5A	Before, 30' east of opening
60	3-09-89	Rochester	Anything #5A	During, 15' east of opening, backfilling w/D-7 cat dozer
61	3-10-89	Rochester	Anything #5A	After, 15' east of opening
62	3-10-89	Rochester	Anything #5A	After, 30' south of opening
63		Rochester	Anything #6	
64	10-17-88	Rochester	Anything #6	Before, 15' west of opening
65	10-17-88	Rochester	Anything #6	During, 15' west of opening, off-loading grate over opening
66	3-10-89	Rochester	Anything #6	After, 15' west of opening
67	10-27-88	Rochester	CC#2 #7	Before, 25' south of opening
68	10-28-88	Rochester	CC#2 #7	During, 25' south of opening, winching grate over opening w/D-7
69	5-15-89	Rochester	CC#2 #7	After, 25' south of opening
70	10-10-88	Rochester	CC#2 #8	Before, 25' south of opening
71	11-30-88	Rochester	CC#2 #8	During, 15' south of opening, stringing wire
72	11-30-88	Rochester	CC#2 #8	During, 35' south of opening, installing clips and stays
73	11-30-88	Rochester	CC#2 #8	During, 35' north of opening, installing clips and stays
74	5-15-89	Rochester	CC#2 #8	After, 35' south of opening
75	5-86	Rochester	CC#2 #9	Before, approximately 60 yards southwest of opening
76	10-28-88	Rochester	CC#2 #9	During, 15' south of opening, leveling w/D-7 dozer
77		Rochester	CC#2 #9	After, 15' south of opening
78				
79	9-27-88	Rochester	Elgin #10	Before, 25' southeast of opening
80	9-27-88	Rochester	Elgin #10	During, 25' southeast of opening, placing grate w/580D hoe
81	5-15-89	Rochester	Elgin #10	After, 25' southeast of opening
82	9-27-88	Rochester	Elgin #11	Before, 15' north of opening
83	9-27-88	Rochester	Elgin #11	During, 15' north of opening, placing grate w/580D hoe
84	9-27-88	Rochester	Elgin #11	During, 15' north of opening, hand digging pedestal holes
85	5-15-89	Rochester	Elgin #11	After, 15' north of opening
86	10-12-88	Rochester	Emma #14	Before, 8' east of opening
87	10-13-88	Rochester	Emma #14	During, 10' east of opening, placing grate w/8 ton hydrocrane
88	5-15-89	Rochester	Emma #14	After, 15' east of opening
89	10-12-88	Rochester	Emma #15	Before, 10' southeast of opening
90	10-12-88	Rochester	Emma #15	Before, 10' southeast of opening



PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
91	10-13-88	Rochester	Emma #15	During, 15' east of opening, placing grate w/580D hoe
92	5-15-89	Rochester	Emma #16	After, 15' southeast of opening
93	10-12-88	Rochester	Emma #16	Before, 15' south of opening
94	10-13-88	Rochester	Emma #16	During, 15' south of opening
95	5-15-89	Rochester	Emma #16	After, 15' south of opening
96	10-12-88	Rochester	Emma #16A	Before, 10 northwest of opening
97	10-13-88	Rochester	Emma #16A	During, 10' northwest of opening, hand digging pedestal holes
98	5-15-89	Rochester	Emma #16A	After, 10' northwest of opening
99	10-10-88	Rochester	Emma #18	Before, 15' north of opening
100	10-18-88	Rochester	Emma #18	During, 15' north of opening, drilling for line posts
101	10-18-88	Rochester	Emma #17/18	During, 25' north of #17, drilling for line posts
102	10-18-88	Rochester	Emma #17/18	During, approximately 200 yards north of opening, blasting post holes
103	5-15-89	Rochester	Emma #17/18	After, 30' north of #17
104	10-05-88	Rochester	Hermit #19	Before, 20' south of opening
105	10-05-88	Rochester	Hermit #19	Before, 20' south of opening
106	10-05-88	Rochester	Hermit #19	During, 20' south of opening, leveling site w/580D loader
107	5-15-89	Rochester	Hermit #19	After, 20' south of opening
108	10-05-88	Rochester	Idler #20	Before, 25' east of opening
109	10-05-88	Rochester	Idler #20	During, 25' east of opening, leveling w/580D hoe
110	10-05-88	Rochester	Idler #20	During, 25' east of opening, leveling w/580D hoe
111	5-15-89	Rochester	Idler #20	After, 25' east of opening
112	9-29-88	Rochester	Lizzie Ann #21	Before, 20' southeast of opening
113	9-29-88	Rochester	Lizzie Ann #21	During, 20' southeast of opening, placing grate w/tilt-bed-trailer
114	5-15-89	Rochester	Lizzie Ann #21	After, 15' east of opening
115	5-15-89	Rochester	Lizzie Ann #31	After, 20 southeast of opening
116	10-29-88	Rochester	Monitor #22	Before, south of opening
117	10-29-88	Rochester	Monitor #22	During, 30' south of opening, placing grate w/580D loader
118	5-15-89	Rochester	Monitor #22	After, 30' south of opening
119	10-19-88	Rochester	NE Sec4 #23	Before 20' southeast
120	10-19-88	Rochester	NE Sec4 #23	During, 20' southeast of opening, placing grate w/8 ton hydrocrane
121	5-16-89	Rochester	NE Sec3 #23	After, 20' southeast of opening
122	10-19-88	Rochester	NE Sec4 #24	Before, 25' north of opening
123	10-19-88	Rochester	NE Sec4 #24	During, north of opening, hand placing grate
124	5-16-89	Rochester	NE Sec4 #24	After, 20' north of opening
125	9-29-88	Rochester	NE Sec32 #26	Before, 15' south of opening
126	9-29-88	Rochester	NE Sec32 #26	During, 15' south of opening, placing grate w/580D hoe
127	5-15-89	Rochester	NE Sec32 #26	After, 15' south of opening
128	10-14-88	Rochester	Never Fail #27	Before, 15' north of opening
129	10-14-88	Rochester	Never Fail #27	During, 15' north of opening, placing fill w/580D loader
130	5-15-89	Rochester	Never Fail #27	After, 15' north of opening
131	10-14-88	Rochester	Never Fail #28	Before, 10' south of opening
132	10-14-88	Rochester	Never Fail #28	During, 20' south of opening, leveling w/D/7 dozer
133	5-15-89	Rochester	Never Fail #28	After, 20' south of opening
134	10-14-88	Rochester	Never Fail #29	Before, 15' north of opening
135	10-14-88	Rochester	Never Fail #29	During, 5' north of opening, installing lock





PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
136	5-15-89	Rochester	Never Fail #29	After, 15' north of opening
137	11-02-88	Rochester	NW Sec26 #30	Before, 15' east of opening
138	11-02-88	Rochester	NW Sec26 #30	During, 15' east of opening, leveling grate
139	5-15-89	Rochester	NW Sec26 #30	After, 15' east of opening
140	11-1-88	Rochester	NW Sec26 #30A	Before, 15' south of opening
141	5-12-89	Rochester	NW Sec26 #30A	During, 15' south, touch-up painting
142	5-12-89	Rochester	NW Sec26 #30A	After, 15' south of opening
143	10-15-88	Rochester	NW Sec33 #31	Before, 15' north of opening
144	10-15-89	Rochester	NW Sec33 #31	During, 15' north of opening, backfilling w/D-7 dozer
145	10-15-89	Rochester	NW Sec33 #31	After, 15' north of opening
146	3-13-89	Rochester	NW Sec33 #31	After, 15' north of opening
147	10-15-88	Rochester	NW Sec33 #32	Before, 35' north of opening
148	10-15-88	Rochester	NW Sec33 #32	During, 35' north of opening, backfilling w/D-7 dozer
149	10-15-88	Rochester	NW Sec33 #32	After, 35' north of opening
150	10-15-88	Rochester	NW Sec33 #32A	Before, 20' south of opening
151	10-15-88	Rochester	NW Sec33 #32A	During, 20' south of opening, backfilling w/D-7 dozer
152	10-15-88	Rochester	NW Sec33 #32A	After, 20' south of opening
153	3-13-89	Rochester	NW Sec33 #32/32A	After, 40' north of opening
154	10-14-88	Rochester	NW Sec33 #33	Before, 20' south of opening
155	10-14-88	Rochester	NW Sec33 #33	During, 20' south of opening, backfilling w/D-7 dozer
156	10-14-88	Rochester	NW Sec33 #33	After, 20' south of opening
157	10-14-88	Rochester	NW Sec33 #34	Before, 15' north of opening
158	10-14-88	Rochester	NW Sec33 #34	During, 15' north of opening, backfilling w/580D hoe
159	10-14-88	Rochester	NW Sec33 #34	During, 15' north of opening, backfilling w/580D hoe
160	10-14-88	Rochester	NW Sec33 #34	After, 15' north of opening
161	3-13-89	Rochester	NW Sec33 #34	After, 15' north of opening
162	10-14-88	Rochester	NW Sec33 #35	Before, 20' north of opening
163	10-14-88	Rochester	NW Sec33 #35	Before, 20' north of opening
164	10-14-88	Rochester	NW Sec33 #35	During, 20' north of opening, backfilling w/D-7 dozer
165	10-14-88	Rochester	NW Sec33 #35	After, 20' north of opening
166	3-13-89	Rochester	NW Sec33 #35	After, 20' north of opening
167	10-14-88	Rochester	NW Sec33 #36	Before, 15' south of opening
168	10-14-88	Rochester	NW Sec33 #36	During, 15' south of opening, backfilling w/D-7 dozer
169	10-14-88	Rochester	NW Sec33 #36	After, 15' south of opening
170	3-13-89	Rochester	NW Sec33 #36	After, 15' south of opening
171	10-14-88	Rochester	NW Sec33 #37	Before, 10' north of opening
172	10-14-88	Rochester	NW Sec33 #37	During, 10' north of opening, backfilling w/D-7 dozer
173	10-14-88	Rochester	NW Sec33 #37	After, 10' north of opening
174	3-13-89	Rochester	NW Sec33 #37	After, 20' south of opening
175	10-14-88	Rochester	NW Sec33 #38	Before, 15' south of opening
176	10-14-88	Rochester	NW Sec33 #38	During, 15' south of opening, backfilling w/D-7 dozer
177	10-14-88	Rochester	NW Sec33 #38	After, 15' south of opening
178	3-13-89	Rochester	NW Sec33 #38	After, 15' south of opening



PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
179	5-89	Rochester	SW Sec3 #40	Before, 15' East of opening
180	6-89	Rochester	SW Sec3 #4	After, 15' east of opening
181	3-10-89	Rochester	SW Sec3 #44	Before, 15' south of opening
182	3-10-89	Rochester	SW Sec9 #44	Before, 15' south of opening
183	3-10-89	Rochester	SW Sec9 #44	During, 15' south of opening, removing timber w/931 cat loader
184	3-10-89	Rochester	SW Sec9 #44	After, 15' south of opening
185	3-10-89	Rochester	SW Sec9 #44	After, 15' south of opening
186	10-19-88	Rochester	Watseca #45	Before, 15' east of opening
187	10-18-88	Rochester	Watseca #45	Before, 25' east of opening
188	11-30-88	Rochester	Watseca #45	During, 25' east of opening, installing top strand wire
189	5-16-89	Rochester	Watseca #45	After, 25' east of opening
190	9-28-88	Rochester	Watseca #46	Before, 30' north of opening
191	9-28-88	Rochester	Watseca #46	During, 30' north of opening, placing grate w/580D hoe
192	5-16-89	Rochester	Watseca #46	After, 30' north of opening
193	10-19-88	Rochester	Watseca #46A	Before, 15' north of opening
194	9-28-88	Rochester	Watseca #46A	During, 10' north of opening, placing grate w/850D hoe
195		Rochester	Watseca #46A	After, 15' north of opening
196	10-19-88	Rochester	Watseca #46B	Before, 15' south of opening
197		Rochester	Watseca #46B	Before, 3' south of opening
198		Rochester	Watseca #46B	After, 15' south of opening
199	10-19-88	Rochester	Watseca #46C	Before, 15' southeast of opening
200	10-19-88	Rochester	Watseca #46C	Before, 25' southeast of opening
201	11-30-88	Rochester	Watseca #46C	During, 15' southeast of opening, installing wire
202		Rochester	Watseca #46C	After, 15' southeast of opening
203	10-19-88	Rochester	Watseca #46D/E	Before, 30' east of opening
204	11-30-88	Rochester	Watseca #46D/E	During, 30' east of opening, pounding line posts
205		Rochester	Watseca #46D/E	After, 20' east of opening
206	9-88	Rochester	Watseca #47	Before, 20' north of opening
207	11-30-88	Rochester	Watseca #47	During, 15' north of opening installing wire clips
208	11-30-88	Rochester	Watseca #47	During, 15' east of opening
209	5-16-89	Rochester	Watseca #47	After, 20' north of opening
210	9-29-88	Rochester	Yellow Mtl #48	Before, 20' east of opening
211	9-29-88	Rochester	Yellow Mtl #48	During, 20' east of opening, leveling w/580D hoe
212	5-16-89	Rochester	Yellow Mtl #48	After, 20' east of opening
213	11-22-89	Silver Star	Agalia #1	Before, 15' east of opening
214	11-22-88	Silver Star	Agalia #1	During, 15' east of opening, assembling grate w/cat 931 hoe
215	3-28-89	Silver Star	Agalia #1	During, 25' east of opening, assembling grate w/cat 931 hoe
216	5-15-89	Silver Star	Agalia #1	After, 25' east of opening
217	3-28-89	Silver Star	Agalia #2	Before, 25' east of opening
218	3-28-89	Silver Star	Agalia #2	During, 30' east of opening, clearing debris from culvert
219	5-16-89	Silver Star	Agalia #2	After, 30' east of opening
220	5-16-89	Silver Star	Agalia #2	After, 30' east of opening
221	4-17-89	Silver Star	Ajax #4	Before, 15' north of opening
222	4-17-89	Silver Star	Ajax #4	During, 15' north of opening, installing rock bolts
223	4-18-89	Silver Star	Ajax #4	After, 15' north of opening, installing rock bolts
224	4-18-89	Silver Star	Ajax #4	After, 15' north of opening, installing rock bolts





PHASE 24 CONSTRUCTION PHOTO LOG

(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
225	4-18-89	Silver Star	Ajax #6	Before, 40' west of opening
226	4-18-89	Silver Star	Ajax #6	During, 40' west of opening, installing corner posts
227	5-16-89	Silver Star	Ajax #6	After, 40' west of opening
228	4-24-89	Silver Star	Ajax #7	Before, 30' north of opening
229	2-24-89	Silver Star	Ajax #7	During, 30' north of opening, preparing culvert bed w/931 cat hoe
230	5-16-89	Silver Star	Ajax #7	After, 30' north of opening
231	4-28-89	Silver Star	Aurora Boraellis #8	Before, 15' east of opening
232	4-28-89	Silver Star	Aurora Boraellis #8	During, 15' east of opening, positioning adit door
233	5-16-89	Silver Star	Aurora Boraellis #8	After, 15' east of opening
234	4-19-89	Silver Star	Aurora Boraellis #9	Before 20' north of opening
235	4-20-89	Silver Star	Aurora Boraellis #9	During, 20' north of opening, preparing culvert bed
236	4-20-89	Silver Star	Aurora Boraellis #9	During, 20' north of opening, placing culvert backfill
237	5-16-89	Silver Star	Aurora Boraellis #9	After, 20' north of opening
238	4-18-89	Silver Star	Aurora Galena #10	Before, 15' south of opening
239	4-18-89	Silver Star	Aurora Galena #10	During, 15' south of openings, backfilling w/cat 931 loader
240	5-16-89	Silver Star	Aurora Galena #10	After, 15' south of opening
241	4-18-89	Silver Star	Aurora Galena #10	Before, 15' northwest of opening
242	4-18-89	Silver Star	Aurora Galena #10	During, 15' northwest of opening, backfilling w/cat 931 loader
243	5-16-89	Silver Star	Aurora Galena #10	After, 15' northwest of opening
244	4-04-89	Silver Star	Baccharat #13	Before, 15' north of opening
245	4-04-89	Silver Star	Baccharat #13	During, 15' north of opening, drilling rock bolt anchors
246	5-16-89	Silver Star	Baccharat #13	After, 15' north of opening
247	4-04-89	Silver Star	Baccharat #14	Before, 20' north of opening
248	4-04-89	Silver Star	Baccharat #14	During, 20' north of opening, hand placing grate
249	5-16-89	Silver Star	Baccharat #14	After, 20' north of opening
250	11-08-88	Silver Star	Broad/Victoria#15/16	Before, 35' west of openings
251	11-09-88	Silver Star	Broad/Victoria#15/16	During, 35' west of openings, hand digging pedestal holes and welding legs
252	5-16-89	Silver Star	Broad/Victoria#15/16	After, 35' west of openings
253	4-20-89	Silver Star	Broad/Victoria #76	Before, 10' south of opening
254	4-20-89	Silver Star	Broad/Victoria #76	During, 20' south of opening, backfilling w/D-7 cat dozer
255	5-16-89	Silver Star	Broad/Victoria #76	After, 20' south of opening
256	4-20-89	Silver Star	Broad/Victoria #77	Before, 30' south of opening
257	5-16-89	Silver Star	Broad/Victoria #77	After, 30' south of opening
258	4-20-89	Silver Star	Broad/Victoria #78	Before, 35' south of opening
259	4-20-89	Silver Star	Broad/Victoria #78	During, 35' south of opening, backfilling w/D-7 cat dozer
260	5-16-89	Silver Star	Broad/Victoria #78	After, 15' south of opening
261	4-20-89	Silver Star	Broad/Victoria #79	Before, 20' southeast of opening
262	5-16-89	Silver Star	Broad/Victoria #79	After, 20' southeast of opening
263	4-20-89	Silver Star	Broad/Victoria #80	Before, 15' north of opening
264	4-20-89	Silver Star	Broad/Victoria #80	During 15' north of opening, placing backfill w/cat 931 loader
265	5-16-89	Silver Star	Broad/Victoria #80	After 15' north of opening
266	4-21-89	Silver Star	Broad/Victoria #88	Before, 25' north of opening
267	4-21-89	Silver Star	Broad/Victoria #88	During 25' north of opening, placing initial fill w/cat 931 loader
268	4-24-89	Silver Star	Broad/Victoria #88	During, 200 yards north of opening, blasting cut face for fill ma
269	5-16-89	Silver Star	Broad/Victoria #88	After, 25' north of opening
270	4-03-89	Silver Star	Bulldog #19	Before, 25' east of opening





PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
271	4-03-89	Silver Star	Bulldog #19	Before, 5' east of opening
272	4-03-89	Silver Star	Bulldog #19	During, 15' east of opening, hand placing backfill
273	4-03-89	Silver Star	Bulldog #19	After, 15' east of opening
274	4-03-89	Silver Star	Bulldog #20	Before, 10' east of opening
275	4-03-89	Silver Star	Bulldog #20	During, 10' east of opening, backfilling w/cat 931 loader
276	4-03-89	Silver Star	Bulldog #20	After, 15' east of opening
277	4-03-89	Silver Star	Bulldog #20A	Before, 20' east of opening
278	4-03-89	Silver Star	Bulldog #20A	During, 20' east of opening, backfilling w/cat 931 loader
279	4-03-89	Silver Star	Bulldog #20A	During, 20' east of opening, backfilling w/cat 931 loader
280	4-03-89	Silver Star	Bulldog #20A	After, 20' east of opening
281	4-03-89	Silver Star	Bulldog #21	Before, 20' east of opening
282	4-03-89	Silver Star	Bulldog #21	Before, 5' east of opening
283	4-03-89	Silver Star	Bulldog #21	During, 15' east of opening, backfilling w/cat 931 loader
284	4-03-89	Silver Star	Bulldog #21	After, 15' east of opening
285	4-03-89	Silver Star	Bulldog #22	Before, 35' east of opening
286	4-06-89	Silver Star	Bulldog #22	After, 25' east of opening
287	3-30-89	Silver Star	Bulldog #68	Before, 20' east of opening
288	3-31-89	Silver Star	Bulldog #68	During 20' east of opening, placing culvert w/cat 931 hoe
289	3-31-89	Silver Star	Bulldog #68	After, 20' east of opening
290	4-06-89	Silver Star	Bulldog #69	Before, 15' west of opening
291	4-06-89	Silver Star	Bulldog #69	During, 15' west of opening, set charges for blast
292	4-06-89	Silver Star	Bulldog #69	After, 15' west of opening
293	4-19-89	Silver Star	Clancy #24	Before, 50' east of opening
294	4-19-89	Silver Star	Clancy #24	During, 50' east of opening, backfilling w/cat D-7 dozer
295	4-20-89	Silver Star	Clancy #24	After, 50' east of opening
296	11-15-88	Silver Star	Clancy #25	Before, 15' north of opening
297		Silver Star	Clancy #25	During 15' north of opening, assembling grate next to opening
298	11-07-89	Silver Star	Clancy #25	After, 15' north of opening
299	4-27-89	Silver Star	Clifford #26	Before, 20' south of opening
300	4-27-89	Silver Star	Clifford #26	During, 20' south of opening, backfilling w/cat D-7 dozer
301	4-27-89	Silver Star	Clifford #26	During, 20' south of opening, backfilling w/cat D-7 dozer
302	4-27-89	Silver Star	Clifford #26	After, 20' south of opening
303	4-27-89	Silver Star	Clifford #27	Before, 15' south of opening
304	4-27-89	Silver Star	Clifford #27	During, 15' south of opening, backfilling w/cat D-7 dozer
305	4-27-89	Silver Star	Clifford #27	After, 15' south of opening
306	4-27-89	Silver Star	Clifford #28	Before 25' north of opening
307	4-27-89	Silver Star	Clifford #28	During, 25' north of opening, backfilling w/cat D-7 dozer
308	4-27-89	Silver Star	Clifford #28	After, 25' north of opening
309	4-27-89	Silver Star	Clifford #29	Before, 25' west of opening
310	4-27-89	Silver Star	Clifford #29	During 15' west of opening, backfilling w/cat D-7 dozer
311	4-06-89	Silver Star	Clipper #30	Before, 20' east of opening
312	4-06-89	Silver Star	Clipper #30	During, 20' east of opening, installing culvert w/cat 931 loader
313	5-16-89	Silver Star	Clipper #30	After, 15' east of opening
314	4-06-89	Silver Star	Clipper #31	Before, 20' north of opening, preparing culvert bed
315	4-06-89	Silver Star	Clipper #31	During, 20' north of opening



PHASE 24 CONSTRUCTION PHOTO LOG

(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
316	5-16-89	Silver Star	Clipper #31	After, 20' north of opening
317	7-29-89	Silver Star	Cricket #32	Before, 20' north of opening
318	5-16-89	Silver Star	Cricket #32/32A	After, 10' north of opening
319	5-16-89	Silver Star	Cricket #32A	After, 15' east of opening
320	4-13-89	Silver Star	Cricket #33	Before, 40' north of opening
321	4-13-89	Silver Star	Cricket #33	During, 40' north of opening, placing backfill w/cat 931 hoe
322	4-14-89	Silver Star	Cricket #33	After, 40' north of opening
323	4-05-89	Silver Star	Glenns Falls #34	Before, 20' south of opening
324	4-05-89	Silver Star	Glenns Falls #34	Before, 10' south of opening
325	4-05-89	Silver Star	Glenns Falls #34	During, 10' south of opening, backfilling w/cat 931 loader
326	4-05-89	Silver Star	Glenns Falls #34	After, 10' south of opening
327	4-05-89	Silver Star	Glenns Falls #35	Before, 15' northwest of opening
328	4-05-89	Silver Star	Glenns Falls #35	During, 15' northwest of opening, backfilling w/cat 931 loader
329	4-05-89	Silver Star	Glenns Falls #35	After, 15' northwest of opening
330	4-05-89	Silver Star	Glenns Falls #36	Before, 15' south of opening
331	4-05-89	Silver Star	Glenns Falls #36	During, 15' south of opening, setting charges for blast
332	4-05-89	Silver Star	Glenns Falls #36	After, 15' south of opening
333	4-06-89	Silver Star	Glenns Falls #37	Before, 15' south of opening
334	4-06-89	Silver Star	Glenns Falls #37	Before, 15' south of opening
335	4-06-89	Silver Star	Glenns Falls #37	During 15' south of opening, setting charges for blast
336	4-06-89	Silver Star	Glenns Falls #38	Before, 20' north of opening
337	4-06-89	Silver Star	Glenns Falls #38	During, 20' north of opening, setting charges for blast
338	3-27-89	Silver Star	Golden Rod #39	Before, 10' east of opening
339	3-27-89	Silver Star	Golden Rod #39	During, 10' east of opening, installing shoring
340	3-27-89	Silver Star	Golden Rod #39	During, 10' east of opening, installing perimeter cable
341	3-28-89	Silver Star	Golden Rod #39	After, 10' east of opening
342	3-28-89	Silver Star	Golden Rod #40	Before, 20' north of opening
343	3-28-89	Silver Star	Golden Rod #40	During, 20' north of opening, drilling rockbolt anchor holes
344	3-28-89	Silver Star	Golden Rod #40	During, 5' north of opening, drilling rockbolt anchor holes
345	3-29-89	Silver Star	Golden Rod #40	After, 15' north of opening
346	10-06-89	Silver Star	Green Campbell #4	Before, 5' east of opening
347	4-25-89	Silver Star	Green Campbell #4	During, 15' north of opening, placing grate w/cat 931 hoe
348	5-16-89	Silver Star	Green Campbell #4	After, 15' north of opening
349	11-07-88	Silver Star	Green Campbell #4	Before, 25' west of opening
350	11-07-88	Silver Star	Green Campbell #4	During, 20' west of opening, placing grate w/580D hoe
351	11-07-88	Silver Star	Green Campbell #4	After, 25' west of opening
352	4-21-89	Silver Star	Green Campbell #4	During, 25' north of opening, pouring corner posts
353	4-26-89	Silver Star	Green Campbell #4	After, 20' north of opening
354	11-07-88	Silver Star	Green Campbell #4	Before, 20' northwest of opening
355	11-14-88	Silver Star	Green Campbell #4	During, 20' northwest of opening, placing grate w/580D hoe
356	5-16-89	Silver Star	Green Campbell #4	
357	4-19-89	Silver Star	Green Campbell #4	Before, 30' north of opening
358	5-16-89	Silver Star	Green Campbell #4	After, 15' north of opening
359	4-19-89	Silver Star	Green Campbell #4	Before, 30' east of opening
360	4-19-89	Silver Star	Green Campbell #4	During, 30' east of opening, preparing culvert bed w/cat 931 hoe





PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
361	5-16-89	Silver Star	Green Campbell #46	After, 20' east of opening
362	4-19-89	Silver Star	Green Campbell #47	Before, 15' north of opening
363	4-19-89	Silver Star	Green Campbell #47	During, 15' north of opening, placing backfill w/cat 931 hoe
364	5-16-89	Silver Star	Green Campbell #47	After, 15' north of opening
365	4-19-89	Silver Star	Green Campbell #48	Before, 20' northwest of opening
366	4-19-89	Silver Star	Green Campbell #48	During, 20' northwest of opening, preparing culvert bed w/cat 931 hoe
367	5-16-89	Silver Star	Green Campbell #48	After, 10' northwest of opening
368	10-02-88	Silver Star	Hudson #17	Before, 15' east of opening
369	11-16-88	Silver Star	Hudson #17	During, 15' east of opening, placing grate over opening w/580D hoe
370	5-16-89	Silver Star	Hudson #17	After, 15' east of opening
371	4-24-89	Silver Star	Hudson #81	Before, 10' north of opening
372	4-24-89	Silver Star	Hudson #81	During, 10' north of opening, placing backfill w/cat 931 hoe
373	5-16-89	Silver Star	Hudson #81	After, 10' north of opening
374	10-02-88	Silver Star	Hudson #84	Before, 10' south of opening
375	11-17-88	Silver Star	Hudson #84	During, 25' south of opening, placing grate w/580D hoe
376	5-16-89	Silver Star	Hudson #84	After, 25' south of opening
377	4-04-89	Silver Star	Iron Rod #49	Before, 20' south of opening
378	4-04-89	Silver Star	Iron Rod #49	Before, 10' north of opening
379	5-16-89	Silver Star	Iron Rod #49	After, 20' south of opening
380		Silver Star	Iron Rod #50	Before, 15' north of opening
381	11-22-88	Silver Star	Iron Rod #50	After, 15' north of opening
382	11-22-88	Silver Star	Iron Rod #51	Before, 15' north of opening
383	11-22-88	Silver Star	Iron Rod #51	During, 15' north of opening, off loading grate over opening
384	5-16-89	Silver Star	Iron Rod #51	After, 15' north of opening
385	3-28-89	Silver Star	Iron Rod #53	Before, 15' north of opening
386	3-29-89	Silver Star	Iron Rod #53	During, 15' north of opening, drilling rockbolt anchor holes
387	5-16-89	Silver Star	Iron Rod #53	After, 15' north of opening
388	4-04-89	Silver Star	Iron Rod #70	Before, 10' north of opening
389	5-16-89	Silver Star	Iron Rod #70	After, 10' north of opening
390	9-17-89	Silver Star	Iron Rod Ext.#60	Before, 5' north of opening
391	11-22-88	Silver Star	Iron Rod Ext.#60	Before, 15' north of opening
392	11-22-88	Silver Star	Iron Rod Ext.#60	During, 15' north of opening, placing grate over opening
393	3-28-89	Silver Star	Iron Rod Ext.#60	During, 15' north of opening, welding support legs
394	5-16-89	Silver Star	Iron Rod Ext.#60	After, 15' north of opening
395	9-17-87	Silver Star	Iron Rod Ext.#61	Before, 10' east of opening
396	11-22-88	Silver Star	Iron Rod Ext.#61	During, 25' west of opening, grate positioned over opening
397	3-28-89	Silver Star	Iron Rod Ext.#61	During, 15' west of opening, welding support legs
398	5-16-89	Silver Star	Iron Rod Ext.#61	After, 15' west of opening
399	11-17-88	Silver Star	Keystone #55/54	Before, at portal
400	11-17-88	Silver Star	Keystone #54	Before, 5' south of opening, hand placing specialty grate
401	11-17-88	Silver Star	Keystone #54	During, 5' south of opening, hand placing specialty grate
402	5-01-89	Silver Star	Keystone #55	During, at portal, positioning adit door
403	5-16-89	Silver Star	Keystone #55/54	After, at portal
404	4-24-89	Silver Star	Keystone #57	Before, 25' east of opening
405	4-25-89	Silver Star	Keystone #57	During, 25' east of opening, installing line posts
406	5-16-89		Keystone #57	After, 25' east of opening



PHASE 24 CONSTRUCTION PHOTO LOG  
(Continued)

SLIDE NUMBER	DATE OF SLIDE	MINING DISTRICT	SITE NAME AND NUMBER	SLIDE SEQUENCE, VANTAGE POINT AND CONSTRUCTION OPERATION
407	10-07-87	Silver Star	Locust #58	Before, 10' south of opening
408	5-16-89	Silver Star	Locust #58	After, 10' east of opening
409	5-16-89	Silver Star	Locust #58A	After, 20' southwest of opening
410	10-07-89	Silver Star	Locust #58B	Before, 15' southwest of opening
411	5-16-89	Silver Star	Locust #58B	After, 20' south of opening
412	10-07-89	Silver Star	Locust #59	Before, 5' west of opening
413	3-30-89	Silver Star	Locust #59	Before, 15' south of opening
414	3-30-89	Silver Star	Locust #59	During, 15' south of opening, placing grate over opening
415	5-16-89	Silver Star	Locust #58	After, 15' south of opening
416	4-27-89	Silver Star	Moonlight #62	During 10' east of opening, constructing masonry wall
417	5-01-89	Silver Star	Moonlight #62	After, 15' east of opening
418	5-16-89	Silver Star	Moonlight #62	After, 15' east of opening
419	5-16-89	Silver Star	Moonlight #63	After, 20' northwest of opening
420	4-17-89	Silver Star	Morning #87	Before, 10' west of opening
421	4-17-89	Silver Star	Morning #87	Before, 10' west of opening
422	4-18-89	Silver Star	Morning #87	After, 10' west of opening
423	4-18-89	Silver Star	Morning #87	After, 10' west of opening
424	4-20-89	Silver Star	Sample Orr #64	Before, 20' north of opening
425	4-20-89	Silver Star	Sample Orr #64	After, 20' north of opening
426	9-16-89	Silver Star	Sample Orr #65	Before, 5' north of opening
427	4-20-89	Silver Star	Sample Orr #65	Before, 20' south of opening
428	4-20-89	Silver Star	Sample Orr #65	During 20' south of opening, final grading w/D-7 cat dozer
429	4-20-89	Silver Star	Sample Orr #65	After, 20' south of opening
430	7-30-89	Silver Star	Shamrock #73	Before, 20' east of opening
431	4-26-89	Silver Star	Shamrock #73	During 20' east of opening, installing line posts
432	5-15-89	Silver Star	Shamrock #73	After, 20' east of opening
433	4-17-89	Silver Star	Star #66	Before, 35' north of opening
434	4-17-89	Silver Star	Star #66	During 35' north of opening, hanging cable net
435	4-17-89	Silver Star	Star #66	After 35, north of opening
437	4-27-89	Silver Star	Stlla/Gldn Spike#67	Before, 15' north of opening
438	4-27-89	Silver Star	Stlla/Gldn Spike#67	During, 15' north of opening, backfilling w/cat D-7 Dozer
439	5-16-89	Silver Star	Stlla/Gldn Spike#67	During, 15' north of opening
440	4-27-89	Silver Star	Stlla/Gldn Spike#67A	Before, 25' east of opening
441	4-27-89	Silver Star	Stlla/Gldn Spike#67A	During, 25' east of opening, removing timbers
442	5-16-89	Silver	Stlla/Gldn Spike#67A	After, 30' east of opening







